SWAZILAND

ANNUAL MEDICAL AND SANITARY REPORT

1964

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INTRODUCTION

Swaziland has an area of 6,704 square miles and is bordered on the north, west and south by the Transvaal, and on the east by Mocambique and Zululand.

The Territory is geographically divided into four well defined regions, running from north to south, namely the mountainous highveld in the west with an altitude of 3,500 and 5,000 feet; the middleveld with an average altitude of 2,000 feet; and the lowveld or bushveld with an altitude of 700 feet to 300 feet, and the Lubombo Plateau on the east, with an altitude of 2,000 feet. Scenically the Territory is one of the more attractive parts of Africa. The highveld has a temperate climate and frosts occur during the winter. The climate of the middleveld is subtropical and that of the bushveld is almost tropical.

Rainfall, which occurs chiefly in the summer, varies between approximately 60" a year in the highveld and approximately 30" a year in the lowveld. Drizzle and mists are frequent in the highveld areas. The country is well-watered by numerous perennial streams and rivers, some of which are of a considerable size and now provide water for three large irrigation schemes, which have been established at Mhlume in the north-east, at Big Bend in the east (at both of which sugar is grown) and at Malkerns in the centre of Swaziland (which produces rice, subtropical fruit and citrus).

In addition to the irrigation schemes, other important agricultural activities are cattle ranching and seed cotton production in the bushveld and sub-tropical fruit, maize and rice production in the middleveld, in the southern portion of which a considerable amount of tobacco is also grown. In the mining field Havelock Mine in the north-west is a most important producer of asbestos, and with the opening of the railway in November 1964, connecting Swaziland with Lourenco Marques, the mining of iron ore at Ngwenya and of coal at Mpaka got underway. A pulp mill and a sawmill are operating at two of the forestry concerns in the highveld.

A census of the European and Eurafrican sections of the population was held in 1962, and an estimate was made of the African population at the same time. The resultant figures were:- Africans 270,000, Europeans 8,040, and Eurafricans 2,260. One half of the area of the territory is in communal ownership of the Swazi Nation and the remainder owned by individual tenure farmers. The Swazi have the exclusive use of the communal tenure areas and the remainder is open to farmers of all races without discrimination. Swazi dwellings for the most part consist of wattle-and-daub structures, or bee-hive huts, and small family collections of these huts are widely dispersed. Other than in the neighbourhood of the larger towns, there are no villages. Whilst the agricultural activities of the Swazi are still, in the main, concentrated on the raising of cattle and goats and the cultivation of maize, the work of the Agricultural Department is now producing results, and both the standard and scope of Swazi farming are improving year by year.

There are Government hospitals at Mbabane (168 beds), Hlatikulu (137 beds), Piggs Peak (39 beds) and Mankaiana (33 beds), and there are the following Mission hospitals:-

Raleigh Fitkin Memorial Hospital, Manzini - 275 beds
Good Shepherd Hospital, Stegi - 67 beds
St. Theresa Clinic, Manzini - 40 beds

/Mahamba

Mahamba Hospital, previously run by the Methodist Mission as a general hospital, is now rented from the Mission by Government and operated as a 30 bedded Tuberculosis Hospital. There is also a 12 bedded private Nursing Home in Mbabane. In addition, there are 37 Clinics in the outlying areas, staffed by trained nurses, 23 of these being conducted by Missions and 14 by Government. Havelock Mine has its own hospital and four other large industrial concerns provide medical facilities, based on clinics, for their employees.

The number of medical practitioners working in Swaziland is now 43, 22 of these being in private practice or in the employment of industrial concerns, 13 being in Government service, and 8 being medical missionaries. There is thus 1 doctor per 6,516 persons in Swaziland, in comparison with the accepted Western European standard of 1 doctor for 1,000 patients and the "South of the Sahara" average of 1 doctor per 10,000 persons. The 801 hospital beds in use in Swaziland give a ratio of 2.9 beds per 1,000 persons, as against the Western European average of 4 - 5 beds per 1,000.

The Mbuluzi Leper Hospital, situated 10 miles from Mbabane and run by the Nazarene Mission, with the assistance of a Government grant, copes most adequately with the small number of lepers in the Territory. There is no mental hospital, and dangerous and violent lunatics are detained and treated in sections of the gaols.

The British Red Cross Society is now running Infant Welfare Clinics at Mbabane, Hlatikulu, Stegi, Piggs Peak, Kwaluseni, Mhlambanyati and Goedgegun, at which most useful work is being done. The Save the Children Fund has started a school feeding scheme.

The public health services of the Territory are centred at the Health Office, Manzini, under the control of the Medical Officer of Health, in whose charge are also the malaria control unit and the bilharzia investigation unit.

A small Health Education Unit is based at Mbabane, where there is also a Pathology Laboratory at which routine serological, biochemical, bacteriological and haematological investigations are carried out.

The Medical Association of Swaziland, whose members include private practitioners, medical missionaries and Government medical officers, hold quarterly meetings, which are well supported and which make up to some extent for the lack of professional contact so common in territories such as Swaziland.

The training of nurses in Swaziland is carried out at the Ainsworth Dickson Training College attached to the Raleigh Fitkin Memorial Hospital, where training for the High Commission Territories Nursing Council qualifications in General Nursing, lasting 4 years, and in Midwifery, lasting 1 year, is given. The Ainsworth Dickson Training College can at present train sufficient nurses for the needs of Swaziland. Dispensers and Laboratory Assistants are trained at Government Hospitals as required.

CHAPTER 1.

REVIEW OF THE YEARS WORK

1. It is suggested that non medical readers of this report will find all they want in this Chapter, as the remainder of the report is chiefly a mass of statistics of some importance as a contribution to the medical records of Swaziland, but of little general interest.

The year 1964 was an important landmark in the constitutional development of Swaziland with the formation of the first Legislative Council. The Medical Department has been glad to welcome the Hon. P.L. Dlamini, Member of the Executive Council for Health and Education, and wishes to thank him for the time he has given to the needs of the Department, and for the very real interest he has shown in the Department.

2. Staff. It has not yet been possible to fill the vacant Deputy Director of Medical Services post and at the end of the year three of the thirteen Medical Officer posts were vacant. The position re other senior posts was satisfactory, and the supply of trained nurses continued to exceed the demand.

3. Hospitals and Clinics. The extensions to Mbabane Hospital which had been built in 1963 (viz. temporary general ward, extensions to private wards, isolation block, nurses home) and which had been taken over by the Army, were handed back in the second half of the year, and are now partially in use. No major hospital construction was done in 1964.

The numbers of admissions to Government hospitals in 1964 increased by 600. The increase was particularily marked at Hlatikulu Hospital, where there is now serious overcrowding. Outpatient attendances at Government hospitals fell by about 13,000, this being accounted for by a sharp drop in "subsequent attendances" at Hlatikulu Hospital, owing to a reluctance to pay the "subsequent attendance" outpatient fee, which was brought in for the first time in June 1963. On the other hand, attendances at Government clinics increased by almost 25,000. This resulted, in part, from the fact that 1964 was the first full year for the clinics opened at Mahlangatane and Nkaba in 1963, but it was chiefly due to a general increase in the work of all clinics, as a consequence, it is thought, of the stimulating effect the work of the Health Education Unit has had at the clinics.

Mahamba Hospital, rented from the Methodist Mission, and run as a Tuberculosis Hospital, is proving most useful, and could take many more than the thirty patients at present hospitalised there.

The number of admissions at subsidised Mission hospitals also increased, while Mission hospital and clinic outpatient attendances dropped.

4. Significant Diseases. Tuberculosis remains Swaziland's chief health problem. The work of the W.H.O./UNICEF Assisted Tuberculosis Control project towards finding the best methods within Swaziland's means, of dealing with the problem continues, and it is as yet too early to assess results. The number of cases of tuberculosis dealt with at Government and subsidised Mission hospitals has remained very constant over the past three years, amounting to about 1000 cases, which is approximately 1% of all cases dealt with. The routine treatment given at Government hospitals is a period

/of hospitalisation

of hospitalisation followed by outpatient treatment, using modern anti-tuberculosis drugs. It is difficult to convince patients that long and regular treatment with these drugs is necessary, and many abandon treatment too early, only to relapse later.

Malnutrition was again one of the common causes of ill-health and death, especially amongst children, although for the second year in succession the total number of cases dealt with dropped. It is hoped that this is not entirely fortuitous, but that it is the result of the work done at hospitals and clinics over the years, and the recent work of the Red Cross clinics, The Save the Children Fund School Feeding Scheme, and the Health Education Unit.

Another most important group of diseases are the intestinal diseases such as enteric fever, infantile gastro-enteritis, and the dysenteries, which are associated with lack of sanitation, impure water supplies and flies. During 1964 these conditions caused almost as many deaths as tuberculosis and malnutrition combined.

The epidemic of the mild form of Smallpox, known as Alastrim, which started in 1963, continued throughout the year, and 517 cases, but no deaths, were reported. A total of 76,000 vaccinations were given.

The malaria position remains satisfactory and surveillance was continuous but so long as there is no adequate control in neighbouring territories, there is always a danger of the condition re-establishing itself in Swaziland.

As for bilharzia, routine surveys have been conducted but no large scale control measures have been carried out. Medical opinion is by no means unanimous on the seriousness of the effects of bilharzia, of its priority rating in a country's public health problems and on the best methods of control where this is considered necessary.

Excluding the important diseases already mentioned, the conditions which caused most attendances at Government and subsidised Mission hospitals and clinics, were acute upper respiratory tract infections, diseases of the genito-urinary system, minor disorders of the digestive system, venereal diseases, rheumatism and infections of the skin and subcutaneous tissues.

Dr. Paul Keen, of Johannesburg, and previously a Medical Officer in the Medical Department, is at present carrying out a cancer survey in Swaziland, which is expected to have important results.

5. Public Health Measures. In addition to the malaria and bilharzia work already mentioned, a considerable amount of work is done on the inspection of trade premises, refuse disposal, and water supplies. With the establishment of the Town Management Boards in Mbabane and Manzini, and the employment by these of Health Inspectors, it is intended that the Government Health Inspectors should devote more time to rural areas, and particularily to sanitation and water supplies.

6. Conferences and "Post-graduate" Study. In September 1964, Dr. F. Friedman, Medical Officer in Charge, Hlatikulu Hospital, travelled to Kampala on a W.H.O. Fellowship for the Inter-regional Seminar on Advances in the Prevention and Treatment of Protein-Calorie Malnutrition in Infants and Children, and in June Dr. R.D. Gauldie represented the Department at the Conference on Preventitive Medicine Amongst South African Bantu at the University College of the North, Pietersburg, which was organised

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by the Soutpansberg Branch of the Medical Association of South Africa. In July, Dr. I. Tait attended a Post-graduate Refresher Course in Johannesburg, organised by the Medical Graduates Association of the University of the Witwatersrand. Mr. D.M. Eckard, Health Inspector, was awarded a W.H.O. Fellowship for the W.H.O. Malaria Eradication Training Course held in Lagos from 28th September - 19th December. In April, Sister A. Dlamini returned to Swaziland after having attended the Public Health Nursing Course at the All-India Institute of Hygiene and Public Health at Calcutta, for which she was awarded a UNICEF fellowship, and in September, Sister D. Bhengu left for the United Kingdom for the Overseas Ward Sisters' Course.

7. Visitors. The Department was pleased to welcome Dr. P.W. Dill-Russell, C.B.E., Deputy Medical Adviser at the Department of Technical Co-operation, in October. Other visitors were Mr. T.F. Betts, Field Director of 'Oxfam', and Dr. K.G. Mann, Director General of the Hadassah Medical Organisation in Jerusalem in January, Mr. F. Collins, UNICEF Programme Officer in Kampala in July, Dr. L.J. Charles, Regional Malaria Adviser at W.H.O., Brazzaville, in October, and Dr. L.W. Fitzmaurice, W.H.O. Representative in Lusaka in December.

CHAPTER 2.

COMMUNICABLE DISEASES.

1. TUBERCULOSIS

1.1 Report on W.H.O./UNICEF-assisted Tuberculosis Control Project, covering the twelve-month period ending 31st September 1964.

With the arrival of the Public Health Nurse in February, the World Health Organisation Team is now complete. Two trained Swazi nurses have been recruited as assistants to the Public Health Nurse, and in an attempt to improve liaison between the Team and the people, the Swazi National Council were asked to nominate a Liaison Officer, and he assumed duty in August.

The training of the Swazi members of the team has continued, and in general, they are proving satisfactory. It is hoped to appoint a full time Government Tuberculosis Medical Officer shortly to act as couhterpart to the W.H.O. Medical Officer, and to take over the general control of tuberculosis work in the Territory as a whole.

The team continued its work in the "Training Area" in the Ezulwini Valley until the end of March 1964, the bulk of the work being case-finding by X-Ray examination and direct microscopy, home visits and domiciliary treatment of cases found with P.A.S. and I.N.H.

Of the 3,000 persons X-Rayed from October to March, 11.7% showed calcified or fibrotic lesions, 2.9% showed infiltrates without cavities, and 1.8% showed infiltrates with doubtful or definite cavities. Of the 142 cases with infiltrates, 129 were sputum-tested, and 17.1% of these were positive. Seventy-five cases under domiciliary treatment were given three 3 monthly follow-up examinations, and the results of the X-Ray examinations were assessed as follows:-

Improvement	49
No change	20
Marked Deterioration	3
No lesions visable in any picture	3
	75

Thirteen of the above cases were sputum-positive at first examination. At follow-up, seven of these cases were negative, and one previously negative case was recorded as positive.

In April operations commenced in one section of the pilot project area proper, viz. Manzini township and the peri-urban area, while weekly home visits and fortnightly drug distribution was continued with the cases found in the "Training Area". The results of the work carried out in Manzini up to the end of September are as follows:-

Number of persons registered	6,043
Tuberculin Tests carried out	3,932
Tuberculin tests read	3,801

Eligible for B.C.G. vaccination	1,398
Vaccinated	1,368
X-Rayed	3,527
Infiltrates, with or without cavities, found on X-Ray	76
Number of positive sputa in these with infiltrates	19

It should be noted that children under five years old are not X-Rayed.

The response of the public in Manzini has been somewhat disappointing, as illustrated by the difference in the number of patients registered and the number of patients tuberculin-tested, but it is hoped that the work of the Liaison Officer will be of special value in improving the position.

In early December the staff, and their families, at Swaziland Plantations, a forestry concern in the Piggs Peak district were examined, on the understanding that the employers would arrange treatment of any cases of tuberculosis found. A total of 727 persons were X-Rayed and of these 11 showed infiltrates suggestive of tuberculosis, and one of them had a positive sputum. In March the staff, and their families, of Usutu Pulp Company, a forestry concern in the Mbabane area were similarily examined. Here 1953 persons were tuberculin-tested and 78.3% of these reported back for reading of the results of the tests. The 440 non-reactors received B.C.G. vaccine. The number of X-Rays taken was 1775, and of these 0.9% showed calcified lesions, 0.6% fibrotic lesions, and 1.5% infiltrates. Sputum testing was carried out in 59 persons with radiological signs and 11.9% of these were positive. The staff and their families at Tambuti Estate in the Big Bend area were also examined and 409 out of 429 tuberculin tests were read, and 99 non-reactors received B.C.G. vaccine. Of the 389 persons X-Rayed, 18 had lesions suggestive of tuberculosis, and three of these were positive on sputum testing. On these occasions vaccination against smallpox was also carried out by Medical Department staff.

Work in the Laboratory at the Project Headquarters in Manzini has increased greatly, where culture and drug sensitivity testing is now carried out, in respect of patients in Government and Mission hospitals, as well as for "Project patients". A trial is also being made on the value of a single smear from pooled sputum collected from all members of a single kraal or household, and investigation of a simpler method of staining smears is under way.

Many people with chest complaints from outside the project area, are arriving at the Project Headquarters on their own initiative. These people are examined and treatment arranged where necessary.

It is expected that it will shortly be possible to move out into the rural areas, and it is expected that fuller co-operation will be obtained here from the people.

While the W.H.O. Tuberculosis Control Team continues its efforts to find the most effective and most economical methods of dealing with tuberculosis in Swaziland, steps are now being taken to put the treatment and control of tuberculosis on a more uniform and integrated basis in other parts

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of Swaziland not at present affected by the activities of the W.H.O. Tuberculosis Control Team.

1.2 1,179 cases of Tuberculosis were admitted to Government and Mission Hospitals during the year. 101 deaths were reported. These cases were classified as follows:-

	Cases	Deaths
Respiratory	994	95
Meningeal	7	3
Intestinal & Peritoneal	17	1
Bones & Joints	38	2
All other forms	128	
	1,179	101

The 1963 figures were 1,176 cases and 67 deaths.

2. MALARIA.

The report covers the transmission period 1.7.63. to 30.6.64.

2.1 Summary.

Except for the importation of cases, the malaria position in the Territory can be considered satisfactory. The annual parasite incidence (A.P.I.) was 1.77 per thousand and Annual Blood Examination Rate (A.B.E.R.) was 25.7% of the population at risk. This population was 105,750 and obtained by a physical count.

The number of thick blood smears examined was 27,199 which again shows an increase from last year. As there are only four microscopists it is doubtful if this figure can be much increased without a decline in efficiency.

Analysis of Blood Films Examined

Source	Negative	Positive	Total
Indigenous	23,982	84	24,066
Immigrants and unknown	3,030	103*	3,133
	27,012	187	27,199

* Includes seven positive films from unknown source.

The immigrants originated from the following sources:-

Source	Negative	Positive	Total	% Positive
Mocambique	1,627	78	1,705	4.5
Zululand	610	6	616	0.9
Transvaal	657	10	667	1.5
Other	143	2	145	1.4
	3,037	96	3,133	3.06

2.2. ANNUAL REPORT ON MALARIA CONTROL ACTIVITIES BY THE MEDICAL OFFICER OF HEALTH.

2.2.1. Climatic Conditions

Unusually heavy rains occurred in the Bushveld Areas during January. A.gambiae breeding was at its heaviest during January, February and March. At Border Gate a heavy density of adults was found during November, a great deal of breeding being found in irrigation water.

The meteorological records from various bushveld stations are reflected in the following table.

METEOROLOGICAL REPORT.

MONTH	MANZINI ALTITUDE 2,000 FT.			STEGI ALTITUDE 2,200 FT.			BIG BEND ALTITUDE 500 FT.			MHLUME ALTITUDE 950 FT.			GOLLEL ALTITUDE 600 FT.		
	RAINFALL IN INCH	TEMP. MAX.	TEMP. MIN.	RAINFALL IN INCH	TEMP. MAX	TEMP. MIN.	RAINFALL IN INCH	TEMP. MAX.	TEMP. MIN.	RAINFALL IN INCH	TEMP. MAX.	TEMP. MIN.	RAINFALL IN INCH	TEMP. MAX.	TEMP. MIN
JULY 1963	2.15	82.4	43.7	4.22	77.9	44.6	2.57	86.9	33.8	3.89	-	-	2.66	89.6	41.4
AUGUST "	Nil	92.3	41.9	0.10	87.8	46.4	0.06	92.3	34.7	0.39	-	-	0.08	93.2	43.7
SEPT. "	0.30	93.0	53.6	0.41	95.0	51.8	0.06	96.2	44.6	0.00	-	-	0.06	97.7	51.8
OCTOBER "	3.70	96.8	57.2	3.22	96.8	52.7	1.96	102.2	54.2	2.03	-	-	2.36	104.0	54.5
NOVEMBER "	2.67	96.8	54.5	1.77	90.5	55.4	1.50	97.2	58.1	1.50	-	-	2.58	97.7	59.9
DECEMBER "	2.07	94.1	58.1		98.6	54.5	1.60	104.0	56.3	2.02	90.9	67.6	2.23	103.1	59.9
JANUARY 1964	8.54	94.5	61.4		87.0	66.1	5.22	89.5	69.5	5.09	87.0	67.0	8.97	102.2	62.6
FEBRUARY "	1.94	96.8	60.8	1.90	83.4	64.2	3.66	86.0	61.4	1.13	88.0	66.0	1.83	101.3	61.7
MARCH "	1.87	98.6	62.6	1.36	82.1	62.7	-	-	-	0.00	90.0	68.0	0.47	98.6	65.3
APRIL "	1.89	89.9	48.2	2.62	88.7	50.9	1.74	93.2	46.4	1.28	83.0	61.0	2.73	95.5	50.0
MAY "	0.31	86.0	46.4	0.20	80.6	50.3	0.04	89.6	42.8	0.00	80.0	52.0	0.33	90.5	49.1
JUNE "	0.20	86.9	37.4	0.31	81.5	41.0	Nil	88.7	24.8	0.14	75.0	42.0	0.18	90.5	36.5

2.2.2. Annual Staff Meeting

At the annual staff meeting held at Manzini during the first week of August, individual problems were discussed and the staff were informed of their duties for the new malaria season.

2.2.3. Population and Hut Count

Surveillance operations commenced with the usual civic survey, particulars of which are as follows:-

TOTAL NO. OF KRAALS	HUTS	ADULTS	CHILDREN AND INFANTS	TOTAL POPULATION.
13,250	61,195	55,633	50,117	105,750

2.2.4. Malaria Control Measures

(a) Presumptive treatment of immigrants was discontinued and only Daraprim was initially administered. Positive cases were traced and given the full treatment with Chloroquin Sulphate.

(b) Residual Spraying with Benzine Hexachloride, 12% gamma Isomer, Wettable Powder was carried out only in the Nyakatho - Border Gate strip adjoining the northern side of the Komati River. The insecticide was applied at the rate of 0.2 gm/sq. m., 198 lbs B.H.C. being used for a total of 566 huts.

In this case, the decision to spray was influenced by the vector density. The following is an outline of the position before and after spraying:-

ANOPHELINE COUNT PER HUT BEFORE & AFTER SPRAYING

	NYAKATHO	BORDER GATE
Oct. 1963	23.4 A.funestus group	4.3 A.gambiae
Dec. 1963	Spray with B.H.C.	Spray with B.H.C.
Jan. 1964	0. A.funestus group	0.4 A.gambiae 0.5 A.funestus group
Feb. 1964	0. A.funestus group	0.3 A.gambiae 0.4 A.funestus group
April 1964	1.2 A.funestus group	0. A.gambiae 0.06 A.funestus group

The entomological situation elsewhere did not warrant residual spraying.

(c) Larvaciding with "Malariol" was carried out at two places at Big Bend as a substitute for residual spraying. The following are details of these activities:-

Vokovane, Crown Land, Big Bend.

11.3.1964.	16 A.gambiae in one hut.
11.3.1964.	Larval survey of nearby stream - A.gambiae larvae found.
25.3.1964.	Application of Malariol to Stream.
8.4.1964.	2 huts space sprayed - 0 A.gambiae.
22.4.1964.	2 huts space sprayed - 0 A.gambiae.
22.4.1964.	Larval survey - 0 larvae found.

Picardie Estates, Big Bend.

20.3.1964.	7 Huts space sprayed - 8 A.gambiae.
24.3.1964.	6 Huts space sprayed - 7 A.gambiae.
25.3.1964.	Larval survey - 30 A.gambiae in drainage furrows and 3 A.gambiae in swamps.
8.4.1964.	Application of Malariol to furrows and swamps at Picardie and Mfula.
22.4.1964.	Larval survey - 0 larvae found.
22.4.1964.	9 Huts space sprayed - 3 A.gambiae.
3.6.1964.	9 Huts space sprayed - 10 A.gambiae.
3.6.1964.	Application of Malariol.

(d) Drug prophylaxis with Pyremethamine was carried out at Big Bend Ranches Ltd. and Picardie Estates as the result of the occurrence of 12 cases in one compound at Big Bend Ranches during March.

Drug prophylaxis with Pyremethamine and "Darachlor" was also carried out at Mhlume Sugar Estates after the occurrence of 40 cases during April.

Results of entomological investigations carried out in these two places are indicated in the table under the entomology section.

(e) Surveillance operations were continued by the field staff who were concerned mainly with routine blood taking, hut space spraying and larval collecting.

(f) Parasitology. Bloodslides taken during the year were examined at the Health Office, Manzini by four microscopists and the following results were recorded:-

SOURCE	NEGATIVE	POSITIVE	TOTAL
Indigenous	23,982	84	24,066
Unknown		7	
Immigrants	3,030	96	3,133
Combined	27,012	187	27,199

Annual Parasite Incidence: 0.176%
Annual Blood Examination Rate: 25.7%

Immigrants originated from the following sources:-

SOURCE	NEGATIVE	POSITIVE	TOTAL	% POSITIVE
Mocambique	1,627	78	1,705	4.57
Zululand	610	6	616	0.97
Transvaal	657	10	667	1.5
Other	143	2	145	1.4
	3,037	96	3,133	3.06

(g) Hut Space Spraying. The results of this work carried out by the field staff were:-

No. of huts tested	14,706
No. of A.gambiae found	830
No. of A.funestus group	458
No. of other mosquitoes	385

(h) Larvae Examination:

A.gambiae	740
A.funestus group	70
Other mosquitoes	1,918

2.2.5. ENTOMOLOGY.

(a) Assessment of Behaviouristic Changes.
Entomological surveys were conducted in order to assess any behaviouristic changes which may have occurred during the season. The following table reflects these special investigations:-

SPECIAL ENTOMOLOGICAL INVESTIGATIONS

PLACE	DATE	MAN-BAITED NET	CALF-BAITED NET	MOSQ. BITING MAN OUTSIDE	WINDOW CAGE TRAPS	SPACE SPRAYING	LARVAL COLLECTIONS	REMARKS
Mfula Planters	14.10.63	Nil	Nil					
Mfula Planters	15.10.63	Nil	Nil					
Usutu Planters	16.10.63	Nil	1A.gambiae		4 Cages Nil			
Balegane Nyokanyoka	21.10.63	Nil	Nil		2 Cages Nil		(1A.funestus in Pit shelter)	
Nyakatho Komati River	22.10.63	3A.funest gr.	44A. funestus gr.				(A.funestus gr. includes A. Rivolorum)	
Nyakatho Komati River	23.10.63					5 Huts: 130A funest. gr.	(A.funestus gr. includes A. Rivolorum)	
Border Gate Komati River	6.11.63 & 13.11.63				8 Cages 13A.gamb.	77 Huts:338A gamb.(11 male)	Nil	
Hereford Komati River	18.11.63					8 Huts: Nil.		
Nyakatho Komati River	19.11.63 & 21.11.63					88 Huts: 2A gamb: 48A funest. gr.	6A. gambiae	
Mabiya Nkambeni	26-27.11.63	Nil	1A.gambiae		4 Cages 1A.gamb.	26 Huts: 0	55A.gambiae	
Border Gate	26.11.63						51A.gambiae	
Border Gate	18.12.63					22 Huts: 2A gamb.(1 male)		
Sivunga	14-17.1.64					95 Huts: 64A funest. gr.		For precipit. Test.
Nkambeni	17.1.64					6 Huts: 28A. gambiae		For precipit. Test.
Ndondagasuka	17.1.64					4 Huts: 7A gambiae		For precipit. Test
Crown Lands Big Bend	31.1.64					9 Huts: 9A gambiae		For precipit. Test.
C. Badenhorst	31.1.64					2 Huts: 1A gambiae		For precipit, Test.
Harmonie	31.1.64					4 Huts: 2A gambiae		For precipit. Test.
Usutu/Mpofu Junction	4.2.64					6 Huts: 3A gambiae		For precipit. Test.
Border Gate	11-12.2.64					56 Huts: 11A gambiae		For precipit. Test
Mhlangatane	16-17.3.64	Nil	1A. funestus gr.		2 Cages Nil	2 Huts: Nil		
Mpofu	17-18.3.64	Nil	6A.gambiae		1 Cage Nil	8 Huts: 2A. gambiae	17A.gambiae	
Picardie Est. Big Bend	23-24.3.64	4A.gambiae		Nil	6 Cages 1A.gamb.	6 Huts: 7A gambiae	33A.gambiae	
Bholi Compound Big Bend	24-25.3.64	Nil		Nil	3 Cages Nil	13 Huts: Nil	2A.funest. type	
Bholi Compound Big Bend	26.3.64	Nil						
Mkofeni Comp. B.B. Ranches	31.3.64 2.4.64	36A.coust. 3A.gamb.		15A.coust.	1 Cage 1A.gamb.	12 Huts: 4A gamb.(1 male)	Nil	6A.coust.Sal. gland dissect. negative
Sect.13 Mhlume	14-15.4.64	2A.gamb.		Nil	5 Cages Nil	17 Huts: 23A gambiae	3A.gambiae	
Sect.13 Mhlume	16.4.64	1A.gamb.		Nil	5 Cages Nil			
Sects.1-12,14-16 Volandine & Vuvuland	15-17.4.64					152 Huts: 32A gambiae (2 males)		
Mkofeni Comp. B.Bend Ranches	3.4.64	24A.coust.		3A.coust.	4Cages 1A.coust.			8A.coust.Sal. gland dissect. negativ[illegible]

(b) Precipitin Test Results.

The following are the results of blood from mosquitos subjected to the precipitin test:-

PLACE AND DATE	NUMBER TESTED	METHOD OF COLLECTION	RESULTS
Nyakatho, Komati River 22 - 23.10.63	25A. funestus group	Man-baited net Calf-baited net Calf-baited Hut space spraying	1A funestus gr. - Bovid 10 " " - " 2 " " - Sheep/Goat 10 " " - Bovid 2 " " - Unident.Bovid.
Border Gate, Komati River. 12.11.63	34 A. gambiae	Hut space spraying	31 A. gambiae - Man 3 A. gambiae - Bovid
Sivunga 14-17.1.64	36 A. funestus gr.	Hut space spraying	1 A. funestus gr - Man 1 " " - Dog 2 " " - Sheep/Goat 20 " " - Bovid 2 " " - Unident.Bovid 7 " " - Mammal 3 " " - Negative
Mabiya - 16.1.64.	2A. gambiae	Hut space spraying	1 A. gambiae - Bovid 1 A. gambiae - Dog
Nkambeni 17.1.64.	33 gambiae	Hut space spraying " " " " " " Pit shelter " " " "	6 A. gambiae - Mammal 10 A. " - Bovid 1 A. " - Unident.Bovid 6 A. " - Mammal 9 A. " - Bovid 1 A. " - Unident.Bovid
Ndondagasuka 17.1.64.	5 A. gambiae	Hut space spraying	4 A. gambiae - Bovid 1 A. " -Unidentif.Bovid
Big Bend Crownlands 31.1.64	8 A. gambiae	Hut space spraying	1 gambiae - Man 2 " - Mammal 5 " - Dog
C. Badenhorst, Big Bend - 31.1.64.	1 A. gambiae	Hut space spraying	1 gambiae - Unidentif. Bovid
"Harmonie", Big Bend 31.1.64	1 A. gambiae	Hut space spraying	1 gambiae - Mammal
Usutu/Mzimpofu Junction 4.2.64	2 A. gambiae	Hut space spraying	1 gambiae - Bovid 1 " - Unidentif. Bovid
Border Gate 11-12.2.64	2 A. gambiae	Hut space spraying	2 gambiae - Bovid

Human blood index for 88 A. gambiae = 36%.

Human blood index for 58 A. funestus = 1.7%.

3. BILHARZIA:- ANNUAL REPORT OF INVESTIGATIONS CARRIED OUT IN 1964.

3.1. Snail Control Projects.

3.1.1. Control Pilot Project at Phonjwana.

1964	DAM			STREAM	
JAN.	0 Physopsis	0 B.Forskalii	0 Gyraulus	0 Physopsis	0 B.Forskalii
FEB.	0 "	16 "	0 "	0 "	0 "
MAR.	0 "	80 "	3 "	0 "	0 "
APR.	0 "	78 "	0 "	0 "	0 "
MAY	0 "	26 "	0 "	0 "	0 "
JUN.	0 "	1 "	0 "	0 "	1 "
JULY	0 "	4 "	0 "	0 "	0 "
AUG.	0 "	1 "	0 "	0 "	0 "
SEPT.	0 "	7 "	0 "	0 "	0 "
OCT.	0 "	10 "	0 "	0 "	1 "
NOV.	0 "	86 "	0 "	0 "	0 "
DEC.	0 "	47 "	0 "	0 "	2 "

Last sulphation December 1963.

During December 1964 the dam wall burst with the result that only a few small pools were left and the stream was flowing fast.

3.1.2 Control Pilot Project - Thandelizwa, Manzini District.

1964	MAIN STREAM				TRIBUTARY	
JAN.	0 Physopsis	32 Lymnaea	39 B.Forskalli	3 Gyraulus	0 Physopsis	30 Lymnaea
FEB.	0 "	34 "	64 "	2 "	0 "	33 "
MAR.	0 "	37 "	37 "	0 "	7 "	20 "
APR.	0 "	26 "	5 "	2 "	0 "	9 "
MAY	0 "	43 "	2 "	1 "	0 "	11 "
JUNE	0 "	13 "	1 "	8 "	0 "	10 "(& 2 Gyraulus)
JULY	0 "	21 "	0 "	4 "	0 "	12 "
AUG.	0 "	18 "	2 "	1 "	0 "	10 "
SEPT.	0 "	31 "	4 "	0 "	0 "	17 "
OCT.	0 "	14 "	12 "	0 "	0 "	9 "
NOV.	0 "	19 "	19 "	0 "	0 "	9 "(& 2 Forskalii)
DEC.	0 "	13 "	34 "	0 "	0 "	11 "

Last sulphation December, 1961.

Last sulphation April, 1964.

3.2. ECOLOGICAL SURVEYS.

3.2.1. R.C. Weir, Mzimnene River, Manzini. See Figure 1.

1964	WATER TEMP. °F.	RAINFALL IN M.M.	PHYSOPSIS (4 MAN HOURS)					
			<3 M.M.	>3 M.M.	>6 M.M.	TOTAL	NO. SHEDDING CERCARIAE	BREEDING - EGG MASSES IN 4 HOURS
JAN.	74	218.5	2	0	19(5)	21(5)	2	10
FEB.	76	69.5	0	8	27(2)	35(2)	2	11
MAR.	74	70.3	0	1	32(8)	33(8)	2	19
APR.	61	25.5	0	8	24	32	1	6
MAY	59	8.0	0	1	33(2)	34(2)	3	16
JUNE	48	5.0	0	1	13	14	1	0
JULY	50	0.9	0	0	9(2)	9(2)	1	0
AUG.	64	0.0	0	0	27(1)	27(1)	1	1
SEPT.	67	12.5	0	1	43	44	6	19
OCT.	70	106.0	3	0	4	7	1	0
NOV.	68	138.6	2	2	17	21	0	11
DEC.	69	98.0	0	3	6	9	0	36

Figures in brackets = Dead snails.

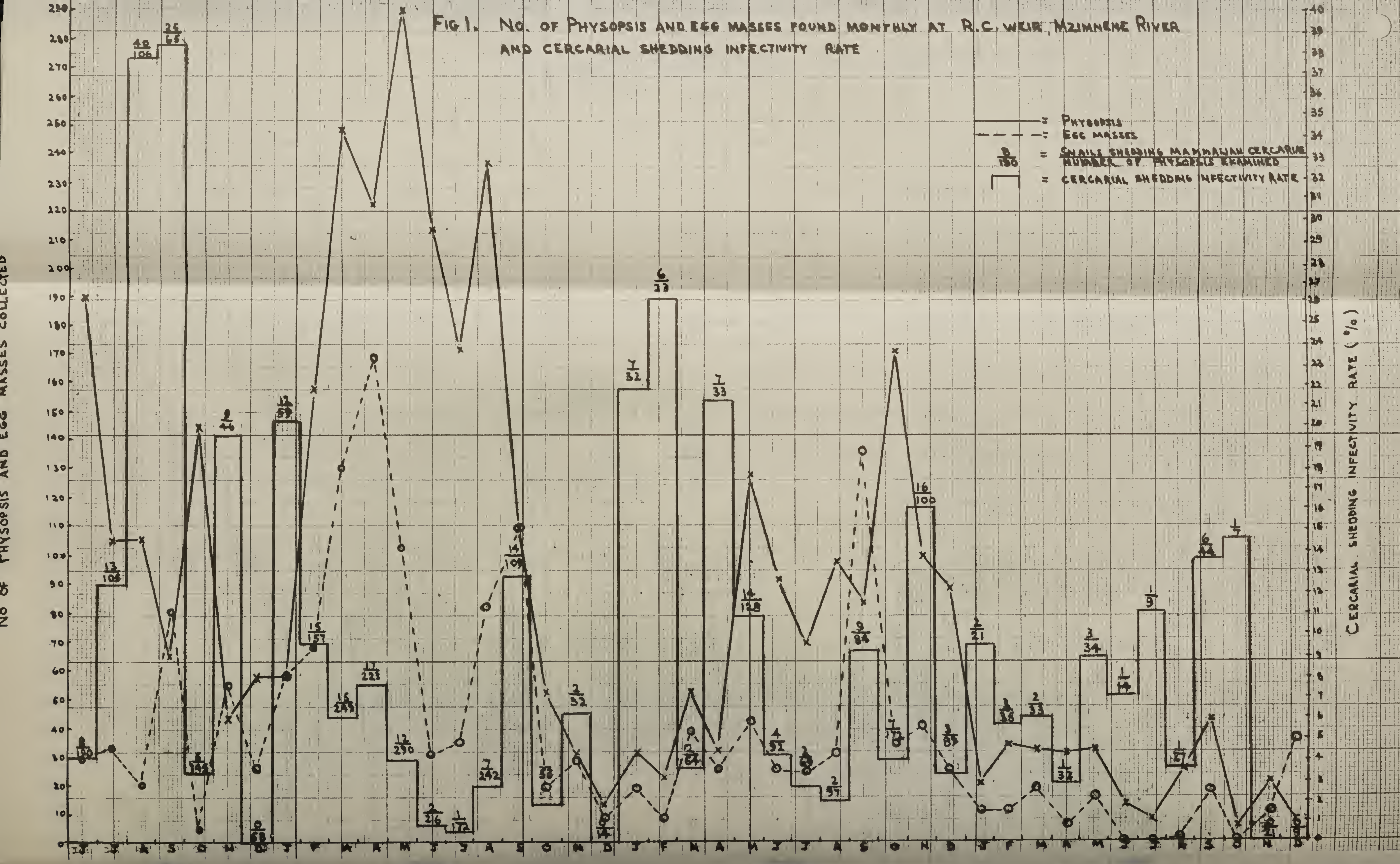


FIG 1. NO. OF PHYSOPSIS AND EGG MASSES FOUND MONTHLY AT R.C. WEIR, MZIMNENE RIVER AND CERCARIAL SHEDDING INFECTIVITY RATE

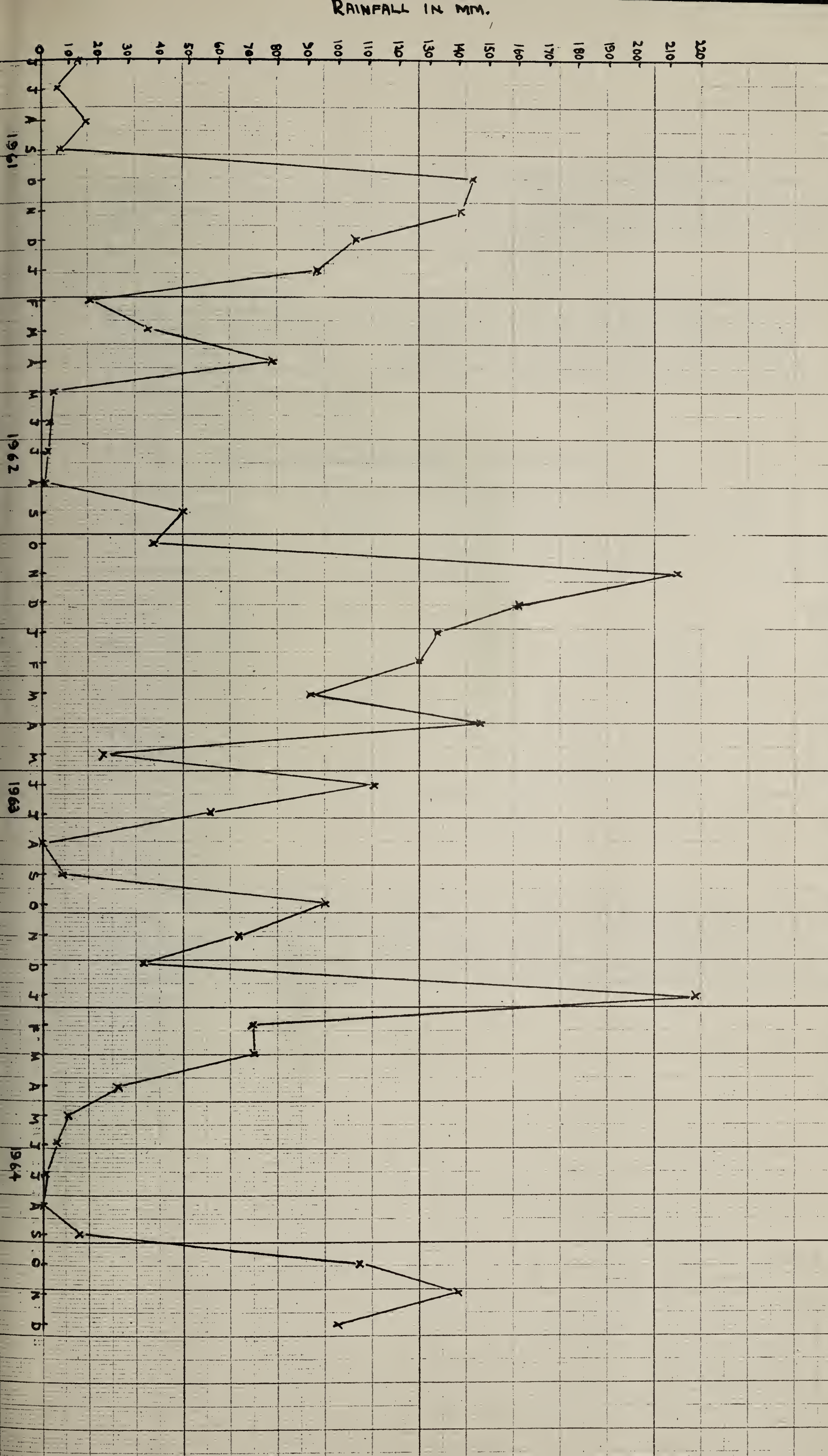


FIG. 2. MONTHLY RAINFALL FOR MANZINI FROM JUNE 1961 - DEC. 1964

In Figure 1, the monthly variation in Physopsis, egg production and cercarial shedding infectivity rate is set out graphically from the commencement of these observations to the end of 1964. Figure 2 is a graphical representation of the monthly rainfall throughout this period.

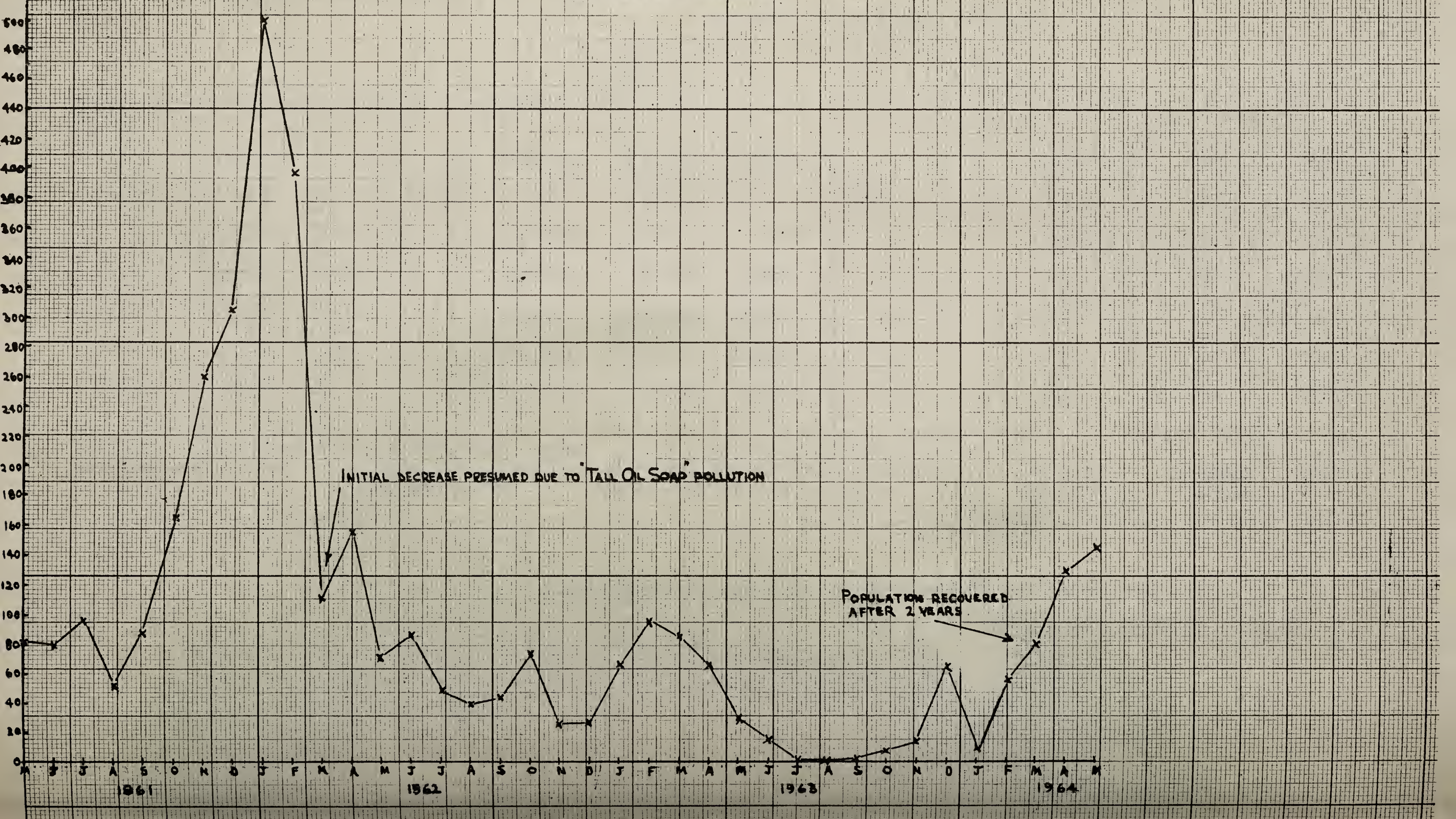
From Figure 1, it can be seen that egg production and the cercarial shedding infectivity rate are consistently high in September each year. It is also consistently high during January of each year. During the rainy season, the number of Physopsis is low, as they get swept away by the increased velocity of the water.

3.2.2. TUNG OILS UPPER DAM. (See Fig. 4)

1964	WATER TEMP. °F.	RAINFALL IN M.M.	BIOMPHALARIA (3 MAN HOURS)			
			<3M.M.	>3 M.M.	>6 M.M.	TOTAL
JAN.	74	217	0	3	7(2)	10(2)
FEB.	77	49.5	0	22(3)	34(3)	56(6)
MAR.	74	70.3	0	27	54(3)	81(3)
APR.	61	25.5	2	70(1)	58(4)	130(5)
MAY	61	8.0	0	39(1)	106(7)	145(8)

As the snails appeared to have recovered from the effects of the "Tall Oil Soap" pollution, it was decided to discontinue this investigation and study the ecology of Biomphalaria and Physopsis in this dam where Physopsis were plentiful in comparison with the Lower Dam where they were only present in insignificant numbers.

FIG 4. NO OF BIOMPHALARIA COLLECTED MONTHLY
FROM TUNG OILS UPPER DAM



3.2.3. Tung Oils Upper Dam

The following are the results of this new investigation:-

1964	WATER TEMP. °F.	RAINFALL IN M.M.	BIOMPHALARIA (4 MAN HOURS)				PHYSOPSIS			
			< 3 M.M.	> 3 M.M.	> 6 M.M.	TOTAL	<3 M.M.	> 3 M.M.	> 6 M.M.	TOTAL
JUNE	50	5.0	3	60(5)	109(9)	172(14)	0	9	50(5)	59(5)
JULY	54	0.9	0	24(10)	49(11)	73(21)	0	3(7)	25(5)	28(12)
AUGUST	63	0.0	3	6(14)	18(7)	27(21)	1	4(1)	26(1)	31(2)
SEPT.	68	12.5	0	0(3)	18(9)	18(12)	0	0(2)	36(2)	36(4)
OCT.	70	106.0	6	16	6(4)	28(4)	3	8	12	23
NOV.	72	138.6	0(2)	4	18(6)	22(8)	9(1)	11	47	67(1)
DEC.	69	98.0	4	9(5)	65(22)	78(27)	2	22	97(1)	121(1)

Figures in brackets = Dead snails.

Rainfall figures for Manzini.

(See also Figure 5.)

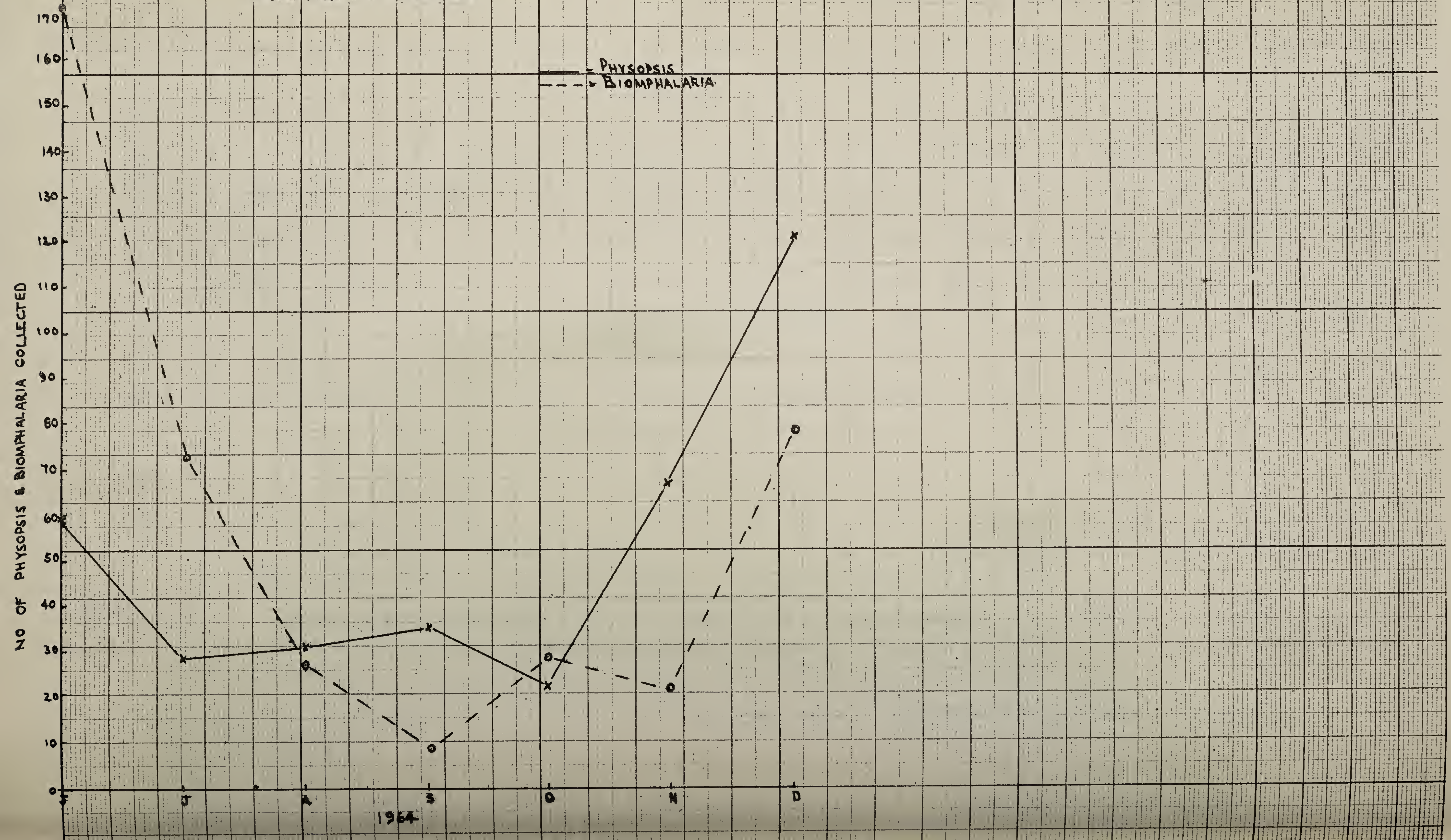


FIG 5. No. of PHYSOPSIS AND BIOMPHALARIA COLLECTED MONTHLY FROM TUNG OILS UPPER DAM

3.2.4 Tung Oils Lower Dam. (See Fig. 3)

1964	WATER TEMP. °F.	RAINFALL IN M.M.	BIOMPHALARIA (4 MAN HOURS)				PHYSOPSIS (4 MAN HOURS)				EGG MASSES IN 4 HOURS.
			<3 M.M.	>3 M.M.	>6 M.M.	TOTAL	<3 M.M.	>3 M.M.	>6 M.M.	TOTAL	
JAN.	77	217.0	3	145(1)	2232(22)	2380(23)	0	3(1)	10(1)	13(2)	133
FEB.	81	49.5	10	162(4)	2153(41)	2325(45)	0	2	6	8	196
MAR.	77	70.3	2	141(2)	2415(27)	2558(29)	0	7	8	15	134
APRIL	65	25.5	15	185(1)	2820(28)	3020(29)	0	7	6(1)	13(1)	191
MAY	63	8.0	4	166(2)	2041(35)	2211(37)	0	0	13	13	143
JUNE	54	5.0	3	140	1589(18)	1732(18)	0	0	4	4	97
JULY	60	0.9	1(1)	122(11)	729(130)	852(142)	0	0	3(1)	3(1)	48
AUG.	64	0.0	26(1)	156(25)	856(72)	1038(98)	0	0	0(1)	0(1)	75
SEPT.	74	12.5	0	45(3)	454(59)	499(62)	0	0(1)	0	0(1)	171
OCT.	70	108.0	97(2)	48(3)	425(17)	570(22)	0	0	0	0	39
NOV.	72	136.6	188	667	1245(3)	2100(3)	0	0	2	2	103
DEC.	77	98.0	4	113(3)	1453(26)	1570(29)	0	0	0	0	85

Figures in brackets = Dead snails
Rainfall figures for Manzini.

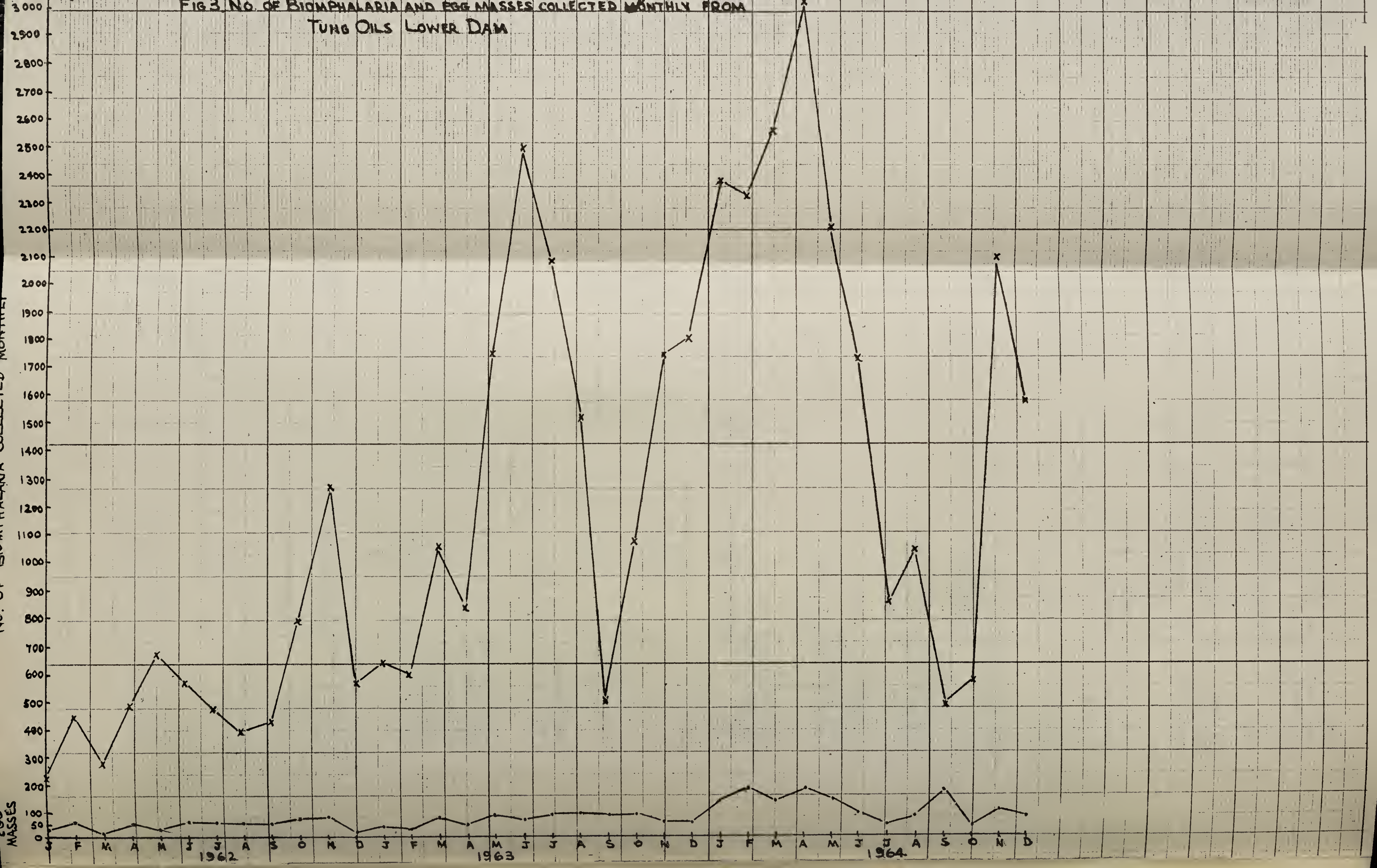


FIG 3. NO. OF BIOMPHALARIA AND EGG MASSES COLLECTED MONTHLY FROM TUNG OILS LOWER DAM

Physopsis do not feature in the graph as their numbers are too insignificant and as a result, the egg masses ... found would not be much affected by their presence. Egg masses can thus be taken as relating to Biomphalaria.

The graph, which indicates the position since the investigation started in 1962, shows peaks in the Biomphalaria population during May and November of each year.

3.2.5 Other Snail Surveys

(a) Snail Survey - Tambuti Estate, Lubombo District.
On the request of the Manager of Tambuti Estate a snail survey was carried out on the 4th February.

Water from the Usutu River is pumped via a canal into an earth dam from whence it gravitates to a cement dam and thence through a slow sand filter, after which it is chlorinated and subsequently enters a supply reservoir. From the supply reservoir, water is pumped to the houses for domestic use and to another cement dam for cattle drinking.

Physopsis and Biomphalaria were found in the canal and earth dam, and biomphalaria in the two cement dams. The management was advised to:-

(i) Pump water directly from the earth dam to the cement dam for cattle drinking.

(ii) Use filtered and chlorinated water for domestic purposes only, thereby being in a position to allow the treated water to stand for at least 48 hours before use.

(b) Snail Survey - Glenanil Ranch, Mliba.
On the request of the owner of Glenanil Ranch a snail survey was carried out on the 4th March.

Water from the White Umbuluzi is pumped initially into a cement sump, and then via a canal into a corrugated iron dam in which children swim. From the dam, water is pumped into a tank for domestic purposes. No form of treatment is employed.

Biomphalaria were found in the White Umbuluzi and the cement sump, but not in the corrugated iron dam. Filtration, chlorination and storage for 48 hours was recommended.

(c) Snail Survey - Mpangele Ranch, Mliba.
At the request of the owner, a snail survey of Mpangele Ranch was carried out on 21st April.

Biomphalaria were found in an irrigation sump near the house, which was also used for swimming. Biomphalaria were also found in a smaller sump forming part of the same irrigation canal approximately 100 yards further down near the White Umbuluzi from which the water is pumped by means of a centrifugal pump.

No snails were found in the White Umbuluzi at the pumping site, but Biomphalaria were found in this river at the weir site further down on the portion belonging to Panata Ranch. The owner was given advice on water purification.

(d) Snail Survey - Mantenga Falls.
The portion of the Usutshwana River immediately below the Mantenga falls has become popular as a bathing resort, consequently it was decided to carry out a snail survey on 29th April, which yielded the following result:-

/1. (i)

1. (i) Usutshwana river - from falls to ½ mile above falls - No snails in river, but 137 Physopsis, 22 Lymnaea and 4 gyraulus in four side pools. One pool containing 126 Physopsis was found a few yards from the falls.

(ii) Usutshwana river - from immediately below falls to ½ mile lower down - no snails in river, but 3 Physopsis and 15 Lymnaea in two side pools.

(iii) Tributary at bathing site - 200 yards surveyed - no snails.

(e) Snail survey - White Umbuluzi River.

A previous survey of the White Umbuluzi gave the impression that this river was virtually snail-free, but as a result of the findings mentioned in sub-paragraph (c), it was decided to do further investigations on the 12th May, the results being as follows:-

Area Surveyed	Distance Covered	Biomphalaria	Physopsis
Above George Wallis Bridge	100 yds.	7	3
Below George Wallis Bridge	small bay	3	3
Pump Site -Dinedor	100 yds.	87	0
Old Rotary camp site Dinedor	500 yds.	6	6 **
Camp site - MacNabs	400 yds.	2	1

** All shedding mammalian cercariae

(f) Snail Survey - Black Umbuluzi River.

During June 1959, the portion of the Black Umbuluzi River between Miller's Falls, extending through Pine Valley to the bridge below Umbuluzi Girls' School was surveyed, and Physopsis were found only in the slow east-flowing portion of the river, near the school.

A similar survey on the 15th May 1964, revealed very much the same position, except that 1 small Biomphalaria was found in the river below and close to Mission Falls.

/(g) Parasitological

(g) Parasitological Survey - Bholi School, Big Bend.
A comparison is made between a recent survey and one conducted in March 1962.

	S.HAEMATOBIUM			S.MANSONI.	
	AGE GROUP	NO.EXAM.	% +VE.	NO.EXAM.	% +VE.
MARCH 1962.	0 - 10 11 - 20	50 50	68 74	50 50	64 36
TOTALS		100	71	100	50
JUNE 1964.	0 - 10 11 - 20	50 50	54 68	50 50	58 52
TOTALS		100	61	100	55

It was inevitable that a number of the 11-20 year age group included in the recent survey also featured in the March 1962 survey, so the rest of the school, viz. another 41, were also examined with the following results:-

S.HAEMATOBIUM.		S.MANSONI.	
NO.EXAMINED	% +VE	NO.EXAMINED	% +VE.
41	63	41	54

As can be seen, this more or less confirms the original findings of 61% infected for S.Haematobium and 55% for S. Mansoni.

Other parasitic ova found are compared with the 1962 survey.

	NO.EXAMINED	% + VE.	
		1962	1964
TRICHURIS	100	19	22
ASCARIS	100	9	12
STRONGYLOIDES	100	9	10
TAENIA	100	11	9
H.NANA	100	1	2
ENTEROBIUS	100	0	1

(h) Snail Survey - Ubombo Ranches, Big Bend.
In view of the parasitological findings at Bholi School, a snail survey was carried out at Ubombo Ranches where most of

the children come from. Surveys conducted during March 1962 and June 1964 are compared.

	BIOMPHALARIA		PHYSOPSIS		TROPICUS		LYMNAEA	
	1962	1964	1962	1964	1962	1964	1962	1964
MAIN CANAL	0	3	0	0	0	0	0	0
MAIN BRANCH CANAL	0	0	25	0	22	0	0	0
DAM NO. 2.	4	36	0	1	1	5	7	26
STREAM BELOW OLD MILL COMPOUND	39	38	1	4	19	304	0	14
	43	77	26	5	42	309	7	40

The apparent increase in S.Mansoni seems to be supported by the increase in Biomphalaria and the decrease in S.Haematobium corresponds with a decrease in Physopsis.

(i) Bilharzia Survey - Mantambe, Hluti District.

A request was received on behalf of the local chief for some help in dealing with the bilharzia problem in that area.

During June, the Mantambe Methodist School was visited and 54 out of the 62 pupils present were found to have eggs of S.Haematobium in their urines, i.e. 87%. Many Physopsis were found in the Mantambe river and in two tributaries. Advice on preventive measures was given.

(j) Snail Survey - Mhlume.

A comparison is made of a survey done during June with one done during August 1962.

	BIOMPHALARIA		PHYSOPSIS		LYMNAEA	
	1962	1964	1962	1964	1962	1964
DAM NO. 1.	0	0	0	0	0	0
DAM NO. 2.	0(1)	0(1)	0	0	0	0
DAM NO. 3.	0(1)	0	0	0	0	0
CEMENT CANAL BELOW VILLAGE.	36	0(1)	3	1	1	0

(1) = Dead Snails.

Portions only of Dam No. 2 surveyed in 1964. It is unlikely however, that live snails would be found due to the regular fluctuations in the water level.

(k) Examinations of Urines - Mhlume Sugar Co.

As there appeared to be some concern amongst the European staff about the possibility of having contracted bilharzia,

they were invited to submit urine and stool specimens for examination on 23rd June. As a result, some 150 urines and 11 stool specimens were examined. Only one urine had a number of cell-covered objects which were highly suggestive of ova. All the stools were negative.

(l) Parasitological Survey - Mhlume Central School.
During July a parasitological survey was conducted at the Mhlume Central School. Results are compared with those obtained at the school during August 1962.

	S.HAEMATOBIUM		S.MANSONI	
	NO.EXAMINED	% + VE	NO.EXAMINED	% + VE
AUG. 1962				
0-10 yrs	59	64.4	59	50.8
11-20 yrs	41	73.2	41	73.2
TOTALS	100	68.0	100	60.0
JULY 1964				
0-10 yrs	89	67.4	89	74.1
11-20 yrs	104	66.3	104	66.3
TOTALS	193	66.8	193	70.0

Other parasitic ova found were as follows:-

	NO EXAMINED		% + VE.	
	AUG.1962	JULY 1964	AUG.1962	JUL.1964
TRICHURIS	100	193	28	21.8
ASCARIS	100	193	17	15.0
TAENIA	100	193	4	4.1
STRONGYLOIDES	100	193	3	0.5
H. NANA	100	193	2	3.1

(m) Snail Survey - Havelock Mine.
On the 29th June the Tutusi river which runs through Havelock Mine was surveyed. As was the case with the two previous surveys in February 1959 and January 1962, no snails were found.

(n) Snail Survey - Waterford School, Mbabane district.
At the request of the school, a snail survey of the swimming bath, the two streams which feed the bath and the source of the domestic water supply were carried out during September, but no snails were found.

/(o) Snail Survey

(o) Snail Survey - Swaziland Electricity Board Dam at Matsapa.

Snail surveys of the new dam were carried out during July and November, the results being as follows:-

	BIOMPHALARIA	PHYSOPSIS
JULY	6	2
NOVEMBER	24	14

(p) Examination of Urines and Stools at the Health Office, Manzini.

276 urines and 23 stools were examined at the Health Office, Manzini for Bilharzia.

4. POLIOMYELITIS

No cases of this disease were reported during the year.

5. DIPHTHERIA - Twenty two cases with five deaths.

In 1963 there were eighteen cases with eight deaths. The months in which the cases occurred in 1964 were January - 4, March - 2, May - 8, June - 1, July - 1, August - 1, and December - 5.

6. ENTERIC FEVER - Two hundred and ten cases with thirteen deaths.

6.1 A definite reduction in the number of cases of enteric fever was observed during the year. The number of cases of this disease seen during the last five years is shown in the following table:-

1960	202 cases	14 deaths
1961	285 cases	15 deaths
1962	344 cases	18 deaths
1963	378 cases	14 deaths
1964	210 cases	13 deaths

It is suggested that the reduction in the number of cases seen was due to the very long winter and the comparative absence of the musca spp.

The 210 cases were reported during the following months:

January	22	May	6	September	13
February	16	June	3	October	8
March	39	July	7	November	26
April	26	August	8	December	36

/6.2. Vaccinations

6.2 Vaccinations against Typhoid Fever.

These vaccinations were carried out by the Health Staff and were mostly in rural areas.

1st Dose	Second Dose	Booster
16,164	11,122	277

68.8% presented themselves for the second innoculation compared with 73% in 1963.

7. SMALLPOX - Five hundred and seventeen cases.

7.1 Cases of variola minor, which first appeared in April 1963, were again prevalent during 1964. The majority of these cases were very mild, so much so that the patients were ambulatory during the whole course of the disease, thus vastly increasing the number of contacts.

The 517 cases were reported from the following details:-

Hhohho	205
Lubombo	17
Manzini	152
Shiselweni -	53
	517

7.2 Vaccinations Against Smallpox

By the Health Staff - Primary vaccination	27,640
Revaccination	35,263
Total vaccinations by Health Staff	62,903
Vaccinations by Industrial Medical Officers	11,708
Vaccinations in Government & Mission Hospitals	1,549
Total vaccinations by Health Staff	76,160

In 1963, 90,458 people were vaccinated.

8. OTHER INFECTIOUS DISEASES

There were three cases, with one death, of meningococcal meningitis. All districts reported numerous cases of chickenpox, measles and whooping cough.

9. VENEREAL DISEASE

In 1963 there were 2,419 cases of syphilis and 3,889 cases of gonorrhoea. This year the figures are 2,694 cases of syphilis and 4,574 cases of gonorrhoea. The reattendance figures were 5,896 for syphilis and 9,143 for gonorrhoea. The above figures are for attendance at Government, Mission Hospitals and their outstation clinics.

10. LEPROSY

Twenty new cases were admitted to the Mbuluzi Leper Hospital, of these five were persons under sixteen years of age.

10.1 ANNUAL REPORT OF MBULUZI LEPROSY HOSPITAL
for the year ending 31st. December 1964

The statistics in this report will show the usual steady decrease in the number of annual admissions to the Leprosy Settlement, - although this year a small one, - 21 admissions as compared with 22 admissions the previous year. Of these 8 were readmissions as compared with 7 readmissions the previous year. Most of the readmissions (6) were not recurrences of the leprosy, but were readmitted because of the breakdown of foot ulcers and in one case severe malnutrition and neglect. 2 of the readmissions were recurrences of nodular leprosy after being discharged a number of years ago. After keeping up our usual routine (i.e. Diaminophenylsulphone 1 tablet twice weekly, returning every 6 months for re-examination and renewal of 6 months' supply of the tablets) for a number of years, they grew weary in well-doing and ceased to return for their usual check-up and supply of tablets.

Last year we closed the school at the Settlement because of the discharge of the young patients. This year 4 children under 12 years (3 boys and 1 girl) were admitted, and the school was re-opened, with a Standard Vl male patient acting as teacher.

We closed the year with a total of 40 inpatients as compared with 32 at the end of 1963. This apparent increase in the number of patients at the end of this year is due to the continued residence of some old deformed cases who cannot be discharged to their homes for humanitarian reasons.

Our standard treatment is Diaminodiphenylsulphone (DADPS) with dosage varying according to the particular case, together with 'Etisul' (an Imperial Chemical Industries' preparation in an ointment base) given by inunction in some of the more severe cases. Cases which show toxic symptoms from DADPS or showing Lepra reaction are treated with Dimethylaminodiphenyl-thiiurea (Ciba 1906) in place of DADPS. Iron and Yeast tablets are given routine to combat anaemia. Steroids (chiefly prednisolone) are given in cases which show Lepra reaction.

Most patients are admitted in a condition of malnutrition, and soon respond favourably to good food and good hygiene. Morale and psychological improvement are quickly evident after admission, resulting from occupational therapy and spiritual ministrations. Visits by relatives and by ministers of the denominations to which the patients belong are encouraged. A monthly visit by Mr. C.B. Pretious , M.B.E. with gifts and comforts from the Mbabane Division of the Red Cross is much appreciated; other visits which were enjoyed by staff and patients alike during the year were the visit of the Director of Medical Services, Dr. B.D. Whitworth, O.B.E. accompanied by Dr. Dill-Russell of the British Department of Technical Cooperation; the visit of Mrs. Loyd who represented her husband, the Queen's Commissioner, at the giving of Christmas gifts; and a visit with Christmas gifts from the Mhlambanyati Red Cross Division.

All of this is of psychotherapeutic value in the general treatment of this group of isolated and segregated patients.

Farming improvements/.........

Farming improvements at the Settlement have resulted during the year from a grant of £5,000 spread over two years from the Oxford Committee for Famine Relief. This has enabled us to employ an African Farm Manager who is devoting himself to the growing of cereals and vegetables, the care of the dairy herd which supplies the patients with milk, and the care of a flock of Angora goats which has been purchased with a view to a supply of meat and also for the production of mohair for sale or for spinning purposes. The scheme is under supervision of the Agriculture Department of the Swaziland Government.

1. STAFF

Dr. David Hynd, C.B.E.	Hon Medical Officer
Miss E. Cole, M.B.E.	Matron
Miss Betty Mamba	Nurse
Mr. Amos Dlamini	Farm Manager
Mr. Nelson Manana	Chaplain
Petros Gama	Driver
2 Labourers	

The Settlement is run as a department of the Raleigh Fitkin Memorial Hospital, Manzini, whose accounting and clerical staff give their service gratuitously to the Leper Settlement.

11. FINANCIAL

The following is a statement of expenditure in the running of the Settlement for the year ending 31st December, 1964:-

Food	964.47
Salaries and Wages	1775.73
Medicines	141.83
General supplies	396.67
Petrol, Oil and vehicle repairs ..	341.24
Transport	45.06
Cowfeed	45.26
Duty and railage	61.67
Phone rental	11.00
	3782.93

The above expenditure is met by an annual Government Grant of R3,148. The balance is met from donations through the Church of the Nazarene and the Mission to Lepers. Gifts in kind (e.g. fruit, clothing, etc.) from donors in Swaziland and in Churches overseas have assisted a great deal in easing the financial administration of the Settlement.

111. HEALTH OF PATIENTS

The general health of the patients during the year has been good. There have been no epedimics or infectious diseases amongst the patients, and apart from the disturbance to health and well-being from trophic ulcers and Lepra reactions, all patients show a steady progress towards recovery.

1V. STATE DURING THE PAST YEAR

Number of patients.	December 1963	32
	December 1964	40

V. ADDITIONS TO POPULATION/....

V. ADDITIONS TO POPULATION

	Males	Females	Total
Admissions	8	5	13
Re-admissions	2	6	8
	10	11	21

Vl. LOSSES IN POPULATION

Deaths	-	-	Nil
Desertions	-	-	Nil
Discharges	5	8	13
			13

Vll. ORIGIN OF PATIENTS ADMITTED

District	Males	Females	Totals	Percentages
Stegi	-	1	1	4.7%
Mbabane	4	5	9	43.0%
Manzini	1	-	1	4.7%
Mankaiana	2	4	6	28.6%
Piggs Peak	3	1	4	19.0%
Hlatikulu	-	-	-	- -
	10	11	21	100.0%

Vlll. DURATION OF DISEASE BEFORE ADMISSION

Duration	Admissions	Percentages
0 - 1 years	14	66.7%
1 - 2 years	3	14.3%
2 - 3 years	1	4.7%
4 plus years	3	14.3%
	21	100.0%

lX. CLASSIFICATION ON ADMISSION

Type	Males	Females	Totals	Percentages
Lepromatous	3	4	7	33.3%
Neural	7	7	14	66.7%
	10	11	21	100.0%

X. AVERAGE AGE ON ADMISSION

The average age on admission was 35.9 years.

Xl. PROPORTION OF CHILDREN TO TOTAL ADMISSIONS

4 children were admitted under the age of 16 years out of a total of 21 admissions i.e. 19%

Xll. DISEASES TREATED

Trophic ulcers	17
Lepra reactions	9
Blindness	1
Pellagra	3
Malnutrition	8
T.B. of bone	1
Hepatitis	1
Diarrhoea	6
Catarrhal colds	1
Antenatal case	1
Dental caries	15
Tapeworm	2
Burns (hands or feet)	12
Gangrene of digits	3
Conjunctivitis	6

XIV. LABORATORY REPORT/

XlV. LABORATORY REPORT

	Positive (Skin smear)	Negative (Skin smear)
Lepromatous	10	9
Neural	3	6
	13	15

In conclusion deep gratitude is expressed to the members of the staff, to the officers of the Medical, Agricultural, Veterinary and Public Works Department who have helped in the running of the Leprosy Settlement, and to the Church of the Nazarene, The Mission to Lepers, The Red Cross Society and members of the public who helped in financial and other ways during the past year.

/CHAPTER 3.

CHAPTER 3.

NUTRITIONAL AND DEFICIENCY DISEASES

1. Cases diagnosed as malnutrition or 'deficiency diseases' over the last ten years are shown in the following table:

1955	330	1960	2196
1956	450	1961	2864
1957	1010	1962	3240
1958	1459	1963	2399
1959	2010	1964	2110

The breakdown of cases of malnutrition during the last three years is as follows:

	1962		1963		1964	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Total cases	3240	101	2399	75	2110	79
Kwashiorkor	685	35	463	32	657	51
Pellagra	912	4	603	4	602	3
Scurvy	14	-	43	5	28	-
Malnutrition Unqualified	1629	62	1290	34	823	25

2. During the year UNICEF donated 828 cartons (each carton containing 54 lbs.) of skim milk powder. This powder was distributed to the vulnerable groups and was very much appreciated by the recipients. Unfortunately, the second consignment of this milk did not arrive before the end of the year. Stocks were exhausted before the end of September.

3. The Nutrition and Agricultural Extension Training Programme mentioned in last year's report has unfortunately not yet started in the field. This project, a combined effort of the Swaziland Government and F.A.O./UNICEF/W.H.O., has for its long term objectives "to raise the level of nutrition in Swaziland through education in nutrition, increased production and comsumption of protective foods, school feeding, and through the creation of an awareness of the need for better living conditions especially in the rural areas" and the short term objectives "to train Agriculture and Domestic Science Demonstrators, health personnel and rural school teachers in the improved production and use of protective foods in teaching and extension methods and also in methods of health sanitation and home improvement generally".

CHAPTER 4.

SANITATION - WATER SUPPLIES - FOOD SUPPLIES

1. Sewage Disposal.

1.1. Mbabane. The sewage disposal plant continues to work very satisfactorily but unfortunately, the sewage system does not serve more than about 10% of the residential areas. In the residential areas there are individual septic tanks although a few houses still have the bucket system especially in the servants quarters. Plans are on hand for the discontinuation of this antiquated system.

The Msumduza Township has only six public latrines catering for the whole township, which is grossly inadequate. Squatter towns within the town boundry, i.e. Sidwashini, old tin mine village and Mangwaneni have no sanitary facilities and no piped water supply.

1.2. Manzini. Part of the centre of the town is now connected to the main sewerage which has resulted in the elimination of three of the conservancy tanks. These tanks have been a source of a public health nuisance due to overflowing, but now with the decreased number of tanks and the addition of another vacuum tanker, this nuisance has been eliminated.

In the old Zakhele township the public pail latrines are to be demolished and individual pail closets are to be constructed for each house. Along with this improvement a proper bucket washing plant is to be constructed.

1.3. In the smaller towns where water is available, individual septic tanks is the method of choice.

2. Rural Sanitation.

Again no progress can be reported. It will be interesting to see if there will be any improvement in the betterment areas after the inhabitants have been subjected to propaganda by the district teams of the F.A.O./UNICEF/W.H.O. Nutrition and Agricultural Extension Training Project.

3. Refuse Disposal.

The collection and disposal of refuse in the urban areas is the responsibility of the local authority. In Mbabane the local authority has proper collection vehicles but for disposal the method used is uncontrolled tipping at a site adjacent to the industrial area. This site is much favoured by flies and rodents. In Manzini the collection and disposal of refuse was undertaken by the Prison Department, but has now become the responsibility of the Town Management Board. No service exists in Hlatikulu. The refuse is supposed to be buried by the individual, and this practice leads to intense fly breeding.

4. Water Supplies.

Mbabane has an excellent water supply but this supply is not piped to Sidwashini, the old tin mine compound and Mangwaneni. The inhabitants of these townships take their water from a polluted river.

For Manzini the supply was satisfactory both in quality and quantity. Piped water supplies are also provided for Piggs Peak, Stegi, Hlatikulu, Goedgegun and Gollel.

The Laboratory carried out bacteriological examinations on 174 water samples during the year.

/ 5. Food in relation..

5. Food in Relation to Disease.

5.1. Inspection of Trade Premises: With the increase by one of the health inspectorate staff, more attention was paid during the year to inspection of food stores, especially in the rural areas. Inspections were made to check on the structural soundness and cleanliness of the premises as well as the quality of the foodstuffs exposed for sale.

When a trader makes an application for a trade licence, the application is referred to this department, so conditions can be imposed by the licensing authority when granting a licence. If a trader does not attempt to carry out the simple health requirements, he is notified that when his licence is due for renewal his application will be opposed. In the rural areas this is the only method by which the department can control the premises of traders. In the urban areas traders keeping their stores in an unhygienic condition are reported to the local authority who have powers under the Urban Areas Regulations 1962, to deal with these complaints.

5.2. Abattoirs:

5.2.1. The Mbabane abattoir was re-opened during the year as the Manzini abattoir was unable to meet the increased demand for fresh meat. During the year a fence was erected around the abattoir and the cattle pound to keep out the numerous stray dogs which used to frequent the place.

5.2.2. The Manzini abattoir has continued to be busy throughout the year. The following improvements were made:- extension of the hanging hall and overhead runways; flyscreening of the louvre windows and doors; the installation of a boiler; provision of pig scalding tanks and pig race; the contruction of a workers' change room and W.C.; extension to the cattle holding kraal and repairs to the Baber traps.

5.2.3. The Stegi abattoir now caters only for two butcheries, one urban and one rural. The meat inspection of this abattoir is done by the Abattoir attendant. It was necessary to bring this attendant into Manzini for a week's refresher course.

5.2.4. The Hlatikulu and Goedgegun abattoirs are not of satisfactory construction but have improved since a Health Inspector has been posted to Goedgegun.

5.2.5. The following table shows the work done at these abattoirs:

ABATTOIR	ANIMALS SLAUGHTERED			CARCASSES PASSED			CARCASSES FROZEN			CARCASSES COOKED			CARCASSES DESTROYED		
	B	P	S	B	P	S	B	P	S	B	P	S	B	P	S
MANZINI	4894	624	975	4534	598	972	307	1	-	4	-	-	49	25	3
MBABANE	2243	37	242	2236	32	242	-	-	-	3	-	-	7	5	-
GOEDGEGUN	479	37	125	464	36	125	-	-	-	12	-	-	3	1	-
HLATIKULU	266	56	34	266	54	34	-	-	-	-	-	-	-	2	-
STEGI	466	29	17	444	26	17	2	-	-	8	-	-	2	1	-

B = Bovine P = Pigs S = Sheep

The conditions for which whole carcasses were condemned were:- Extensive bruising; Gangrene; Emaciation, and emaciation with pleursy or peritonitis; Gross oedema with measles; "Measles".

The conditions for which portions of a carcass was condemned were:- Bruising - fore or hind quarters; Fasciola

hepatica - bovine liver; Stilesia - sheep liver; Abscesses - liver and lungs; Echinococcus cysts - lungs and kidneys; Fatty degeneration -- liver.

5.3. Butcheries: The butcheries in the urban areas have on the whole maintained a satisfactory hygienic level, except for one butchery in Manzini and one in Mankaiana. These butcheries are regularily inspected by the Health Inspectors.

The rural butcheries showed a slight improvement during the year. In the Shiselweni District four were closed and their licences suspended because no attempt was made by the butchers to bring their premises up to the required minimum standard.

6. Housing.

In all the urban areas designated under the Urban Areas Regulations, the housing for the lower income groups is in very short supply. This causes gross overcrowding and the erection of "shanty towns" both inside and on the periphery of the urban areas.

7. Parasitology.

7.1. Tape Worm Treatment: The Health Office, Manzini, distributes dichlorophen tablets to farmers for the treatment of their employees. 2553 employees and their families received treatment during the year and 492 people were treated at the Manzini Health Office. The number of farmers' employees receiving treatment should be greater than the figures given above as not all farmers who received medicine, made returns.

The dose given is 18 tablets per adult as a single dose with children receiving a proportionate dose. It has now been decided to try out "Yomesan" (Neclosamide) as the adult dose is only four tablets. Results of treatment with this drug have been favourably reported on.

7.2. Bed Bugs: Requests for disinfectation against the bed bug are still being received. So far the carbamate insecticide, "Sevin", is still effective, there being no signs of resistance or increased tolerance.

8. Health Propaganda & Lectures.

8.1. As mentioned in last year's report, the Nutrition/Health Education Unit concentrated its efforts on instructing special categories instead of preaching to the general population at large. These categories were school teachers, nurses in charge of outstation clinics and Home Economic Demonstrators of the Department of Agriculture.

Lectures were given at the Malkerns Agricultural Training Centre and the Teachers' Training College, Manzini. As well as lectures, the students were taught how to make and use flannelgraphs depicting the different types of common Swazi foodstuff. Special attention was paid to the teachers in training and the lectures were kept very simple so that the teachers would have no difficulty in passing on the information to their future pupils. Words like protein and carbohydrate were not used, but the local foodstuffs were divided into protective foods, energy foods and body-building foods.

The Unit made numerous visits to Government outstation clinics. The nurses in charge were encouraged to set aside special times for baby clinics, and during these clinics to give short talks to the mothers on the care and feeding of their children.

/8.2. The......

8.2. The Department of Agriculture produced a mealie meal fortified with soya meal. The soya meal augmented the protein content of the mealie meal. This fortified meal was made into a porridge and the Nutrition Unit carried out accaptability tests. This porridge was found to be acceptable but the fortified meal will cost about fifteen percent more than the standard mealie meal, so the true test will be if the housewife is willing to buy it for the family.

8.3. The health staff at the Manzini Health Office put on a series of lectures and demonstrations for the nurses-in-training at the Raleigh Fitkin Memorial Hospital. The subjects dealt with were urban public health practice (visits were paid to the water works, abattoir, sewage disposal plant, dairies and bakeries), control of infectious disease, of malaria and of bilharziasis.

8.4. Three five-day refresher courses were held in December at the Raleigh Fitkin Memorial Hospital. These courses were for the nurses in charge of outstation clinics and hospital staff nurses. The courses included lectures on nutrition and preventive medicine.

/CHAPTER 5.

CHAPTER 5.

GOVERNMENT AND SUBSIDISED MISSION HOSPITALS AND CLINICS.

1. Tables setting out the staffing of Government hospitals, and the admissions, attendances, etc. at Government and subsidised Mission hospitals and clinics follow:-

1.1. GOVERNMENT AND SUBSIDISED MISSION HOSPITALS AND CLINICS.

	Mbabane	Hlati-kulu	Man-kaiana	Piggs Peak	Total
Hospital Staff					
Medical Officers	5	3	-	1	9
Matron	1	1	-	-	2
Nursing Sisters	7	3	1	-	10
Pharmacist/Storekeeper	1	1	-	-	2
Radiographer	1	-	-	-	1
Housekeeper	1	-	-	-	1
Medical Assistant	-	1	-	-	1
Laboratory Assistant	2	1	-	-	3
Dispensers	2	2	-	-	4
Pupil Dispensers	-	1	-	-	1
Nurses	36	33	6	9	84
Outpatient Attendants	3	-	1	-	4
Ambulance Drivers	2	2	1	1	6
Ward Attendants & Orderlies	15	12			
BEDS.					
(a) Private Wards	14	8	-	-	22
(b) General Wards	154	127	33	39	353
ADMISSIONS.					
(a) Private Wards	363	63	-	-	426
(b) General Wards	3699	3289	640	1183	8811
DAILY AVERAGE NO. OF IN-PATIENTS.					
(a) Private Wards	6.4	1.3	-	-	7.7
(b) General Wards	182.3	208.8	25.6	45.4	462.1
DEATHS.	176	182	4	68	430
OPERATIONS.					
(a) Major	399	85	-	19	503
(b) Minor	790	417	-	50	1257
X-RAY					
(a) Examinations	4605	2836	-	410	7441
(b) Screenings	167	4	-	-	171
OUT-PATIENTS.					
(a) First Attendances					
(i) in Private Ward section of hospital	5261	648	-	137	6046
(ii) in General Ward section of hospital	19088	10095	3813	6541	39537
(b) Subsequent Attendances					
(i) in Private Ward section of hospital	2781	291	-	134	3206
(ii) in General Ward section of hospital	17529	5700	588	4161	27978
Grand Total	44659	16734	4401	10973	76767

/GOVERNMENT

1.2. GOVERNMENT CLINICS - 1964.

	First Attendances	Subsequent Attendances	Total Attendances	Districts Totals
MBABANE DISTRICT				
Government Farm Clinic	9529	2004	11533	11533
HLATIKULU DISTRICT				
Goedgegun	11469	7157	18625	
Mhlosheni	4375	2619	6994	
Hluti	6174	4286	10229	
Edwaleni (Aug-Dec)***	947	753	1700	
Sipofaneni	6046	2702	8748	
Vimy Ridge	1234	258	1492	
Lubuli *	4586	776	5362	
St.Phillips Mission**	4182	11	4193	
New Haven Mission **	10167	2486	12653	
Mahamba (April-Dec)***	3565	990	4555	74551
MANKAIANA DISTRICT				
Mahlangatsha	5655	911	6566	
Dwalile	3239	3405	6644	13210
PIGGS PEAK DISTRICT				
Horo	12264	3108	15372	
Lesters *	3147	1357	4504	
Mhlangatane	6355	1904	8259	
Nkaba	1944	511	2455	30590
STEGI DISTRICT				
Nomahasha *	830	260	1090	1090
MEDICAL OUTPOSTS (visited by Sister in Charge, Mankaiana Hospital but not staffed permanently by a Nurse)				
Mgazini	1260	219	1479	
Endinilembe	490	80	570	
Mangqongqo	141	11	152	
Velezizweni	86	4	90	2291
TOTAL GOVERNMENT CLINIC ATTENDANCES				133265

* = Clinics controlled by Swazi National Treasury - but visited and supervised by Government Medical Officers.

** = Mission Clinics visited and supervised by Government Medical Officers.

*** = Clinics at Missions, rented and run by the Medical Department.

/MISSION HOSPITALS 1964.

1.3. SUBSIDISED MISSION HOSPITALS - 1964.

	Raleigh Fitkin Memorial Hospital	Good Shepherd Hospital	TOTALS
BEDS.			
(a) Private Wards	15	5	20
(b) General Wards	260	62	322
ADMISSIONS.			
(a) Private Wards	494	72	566
(b) General Wards	7570	1353	8923
DAILY AVERAGE NO. OF IN-PATIENTS.			
(a) Private Wards	10.8	1.3	12.1
(b) General Wards	278.2	40.9	319.1
DEATHS.	255	45	300
OPERATIONS.			
(a) Major	636	2	638
(b) Minor	1366	125	1491
X-RAY.			
Examinations	3312	500	3812
Screenings	-	24	24
OUT-PATIENTS.			
(a) First Attendances			
(i) in Private Ward section of hospital	3368	1076	4444
(ii) in General Ward section of hospital	13146	6022	19168
(b) Subsequent Attendances			
(i) in Private Ward section of hospital	307	481	788
(ii) in General Ward section of hospital	5799	1869	7668
GRAND TOTALS	22620	9448	32068

/MISSION CLINICS - 1964

1.4. SUBSIDISED MISSION CLINICS - 1964

	First Attendances	Subsequent Attendances	Total	Mission Total
NAZARENE MISSION				
Stegi	6893	3211	10104	
Endingeni	2955	706	3661	
Piggs Peak	1860	876	2736	
Mliba	655	1546	2201	
Mafuteni	357	617	974	
Bhekinkosi	575	1157	1732	
Balegane	795	1447	2242	
Ebenezer	757	792	1549	
Malinda	1335	1014	2349	
Mayiwane	1147	5225	6372	
Tambankulu	3698	5655	9358	
Malandela	123	245	368	
Lalela	633	471	1104	
Tembelikle	711	689	1400	
Manzana	218	229	447	
Kashewala (2 months)	79	21	100	
				46697
METHODIST MISSION				
Gege (Jan-March only)	238	139	377	
Edwaleni (Jan-March)	471	440	911	
Bholi	653	433	1086	
Mkondo (Jan-March)	66	50	116	
				2490
ROMAN CATHOLIC MISSION				
Our Lady of Sorrows	11199	355	11554	
St. Mary (Feb-Dec)	3933	889	4822	
St. Juliana (May-Dec)	2441	3304	5745	
				22121
TOTAL SUBSIDISED MISSION CLINIC ATTENDANCES				71208

1.5. Full details of Medical Department staff at 31.12.64 will be found at Appendix I, and the detailed Return of Cases Treated at Government and Mission Hospitals, will be found at Appendix II.

2. HAVELOCK MINE HOSPITAL.

The number of Africans who were not mine employees or their dependants who were treated at Havelock Mine Hospital during 1964 was as follows:

Number of Admissions		230
Number of Outpatient	New Cases	578
	Reattendances	639
In-patient Days		2588
Daily number of In-Patients		7.0

/3. MEDICO LEGAL

3. MEDICO-LEGAL POSTMORTEM EXAMINATIONS.

The number of medico-legal post mortem examinations carried out at Government and subsidised Mission Hospitals during 1964 were as follows:

Raleigh Fitkin Memorial Hospital	106
Mbabane Hospital	46
Hlatikulu Hospital	45
Piggs Peak Hospital	26
Good Shepherd Hospital	24.

CHAPTER 6.

MATERNITY AND CHILD WELFARE SERVICES.

Ante-natal clinics are held at all Government and Mission Hospitals, and at most of the outlying clinics. In previous years, it was necessary to encourage Swazi women to come into hospital for their confinements, but the maternity wards are now so popular that overcrowding may in the future necessitate restricting admissions to primiparous women and others in whom difficulty is expected.

The number of ante-natal examinations and confinements carried out during the past 4 years has been as follows:-

	Antenatal Examinations				Confinements			
	1961	1962	1963	1964	1961	1962	1963	1964
Mbabane Hospital	2130	2311	2189	2132	705	802	691	756
Hlatikulu Hospital	1298	1596	844	843	409	528	339	355
Mankaiana Hospital	983	535	185	331	188	180	135	103
Piggs Peak Hospital	930	1087	1165	779	221	241	280	231
Raleigh Fitkin Mem. Hospital & Clinics	4996	3049	3720	2083	979	574	919	1074
Good Shepherd Hospital	972	917	1251	953	139	161	155	226

Child Welfare Clinics have continued at the Nazarene Mission health centres and also at the Government clinics, and attendances here, increased markedly during the year, but actual figures are not available.

CHAPTER 7.

TRAINING OF NURSES

Nurses are trained at the well-equipped Ainsworth Dickson Nursing College, attached to the Raleigh Fitkin Memorial Hospital at Manzini, for the High Commission Territories Nursing Council certificates in General Nursing and Midwifery, the syllabuses of which are based on those of the South African Nursing Council. In the past training was also offered for the Swaziland Executive Nursing Committee certificates in General Nursing and Midwifery, which are of a lower standard and for which the educational requirement is only Standard VI. As a sufficient number of candidates with the higher educational standard required by the High Commission Territories Nursing Council (viz. Junior Certificate) are now coming forward, candidates for training for the Swaziland Executive Nursing Committee certificates are no longer accepted. The last three nurses in training under the Swaziland Executive Nursing Committee completed their training in November.

The results of the examinations held during the year were as follows:-

	MAY		NOVEMBER	
	Passed	Failed	Passed	Failed
HIGH COMMISSION TERRITORIES NURSING COUNCIL				
Preliminary Examination for General Nurses	5	1	13 (6 with honours)	-
Final Examination for General Nurses	2	4	11	6
Midwifery (Part I)	2	-	-	-
Midwifery (Part II)	2	-	6	-
SWAZILAND EXECUTIVE NURSING COMMITTEE.				
Midwifery Examination	-	-	3	-

The number of nurses in training under the High Commission Territories Nursing Council regulations at the end of December 1964 was:-

Student Nurses	1st Year	13
	2nd Year	17
	3rd Year	17
	4th Year	17
Pupil Midwives		10
		74

/Chapter 8.

CHAPTER 8.

LABORATORY SERVICES.

The work in the Pathological Laboratory in Mbabane has shown a decrease in the number of tests performed during the year. This was due to the absence on sick leave of the laboratory technician, when the laboratory had to be closed down as it was impossible to obtain a suitably qualified relief. During November the electrical equipment was damaged in a thunderstorm and for over a week the laboratory was without a servicable incubator.

Histological examinations and other special investigations are carried out by the South African Institute for Medical Research in Johannesburg.

The following hospitals, Mbabane, Hlatikulu, Raleigh Fitkin Memorial and the Good Shepherd, have small laboratories equipped for carrying out simple routine tests.

Blood slides for malaria parasites, and urine and faeces for bilharziasis are referred to the laboratory at the Health Office, Manzini, and the results of these examinations are reported under the sections dealing with malaria and bilharzia, and are not included in the figures which follow:-

(a) PATHOLOGY LABORATORY, MBABANE.

TEST	1962	1963	1964
Blood Culture	211	308	235
Widal (TMX)	898	864	517
Paul Bunnell Test	-	13	15
Vi Test	14	85	77
Stool Culture	52	147	223
Stool Parasitology	59	19	28
Urine complete	42	31	25
Urine Chemistry	-	12	5
Urine Culture	-	90	115
Urine Bilharzia	47	49	42
T.B. direct	203	74	51
T.B. culture	36	30	41
Blood Sugar	47	54	74
Blood Urea	23	94	72
Serum Protein	6	42	80
Serum Bilirubin	8	23	42
Blood Cholestrol	3	8	15
Blood Amylase	2	4	8
Serum Calcium	3	9	15
Serum Phosphatase	1	7	15
C.S. Fluid	21	48	66
Malaria Slides	3	2	12
Culture	131	244	264
Sensitivity Tests	129	288	392
Blood Grouping	14	6	16
Blood Count	55	27	60
E.S.R.	3	6	25
Slides for Microscopy	6	6	12
Diphtheria	26	108	38
Water Analysis	160	181	147
Milk Analysis	14	80	134
V.D.R.L. Test	6288	8515	5846
TOTAL	8506	11474	8707

/Hospital Laboratories

(b) HOSPITAL LABORATORIES.

	Mbabane Hospital	Hlatikulu Hospital	Raleigh Fitkin Memorial Hospital	Good Shepherd Hospital
Urine Examinations (including microscopy)	12,332	2,173	9,509	31
Stool Examinations	3,759	876	158	6
Sputum Examinations	5,345	2,590	720	12
Other Bacteriological Smears	558	108	161	-
Full Blood Counts	917	49	789	3
Red Cell Counts	161	49	-	10
White Cell Counts	191	241	33	15
E.S.R.	791	62	782	5
Haemoglobin Estimations	-	204	586	-
Blood Films for Parasitology	-	71	-	-
Other Examinations	13	20	1,556	60

/CHAPTER 9.

CHAPTER 9 - VITAL STATISTICS

As the African section of the population is at present exempted from the provisions of the Registration of Births, Marriages and Deaths Proclamation, the only figures that are available refer to less than 5% of the population, and are consequently too limited to be of value.

CHAPTER 10 - PRISONS

Regular medical inspections of the prisons at Mbabane, Hlatikulu, Manzini and Stegi have been carried out, and in spite of overcrowding and antiquated buildings, sanitary conditions and the health of the prisoners have been satisfactory on the whole.

Mentally disordered patients in need of care and supervision are cared for in the prisons - the majority being housed in Mbabane Gaol. This is a most unsatisfactory state of affairs - and a mental hospital in Swaziland is urgently required.

CHAPTER 11 - LEGISLATION

Legislation affecting the Medical Department enacted during 1964 was:

The Control of Radio-Active Substances Proclamation, 1964.
(No. 23 of 1964)

The Control of Radio-Active Substances Regulations, 1964.
(G.N. No. 58 of 1964)

Appointment of Members of the High Commission Territories Nursing Council.
(H.C.N. No. 11 of 1964)

Mental Disorders (Forms) Regulations, 1964.
(G.N. No. 82 of 1964)

The Prisons Proclamation, 1964.
(No. 40 of 1964)

The Employment (Care and Welfare) Regulations, 1964.
(G.N. No. 93 of 1964)

/CHAPTER 12.

CHAPTER 12 - FINANCE

The financial statement of the Department for the period 1st April 1963, to 31st March 1964, is as follows:

	R	R
Revenue		
Hospital, Health Centre and other fees		23,454
Expenditure		
Personal Emoluments	195,283	
Travelling Expenses	7,733	
Operation & Maintenance of Vehicles	3,177	
Other Transport Charges	10,917	
Allowances & Fees - Medical	5,383	
Maintenance of Patients	61,270	
Maintenance of Mental Patients	7,286	
Lighting & Heating	6,535	
Hospital Equipment	9,529	
Upkeep of Grounds	347	
Anti Malaria Measures	4,990	
Bilharzia Control	607	
Laboratory Services	2,976	
Public Health Measures	184	
Grants to Missions	41,929	
High Commission Territories Nursing Council	326	
		358,472
C.D. & W. Schemes Expenditure		
D5002 Extensions to Piggs Peak Hospital	618	
D4912 Extensions to Medical Services	57,707	
D4913 T.B. Control	12,352	
D4453 Construction of Clinics	704	
D5136 Extensions to Mbabane Hospital	36,827	108,208
Total Expenditure on Medical and Sanitary Services		466,680
Total Revenue of Territory		
(Excluding Grant-in-Aid from U.K.)		4,210,215
The relationship of Medical Expenditure (territorial) to total revenue of Territory		8.514%

CONCLUSION.

I wish to express my sincere appreciation of the loyal and efficient manner in which members of the Department carried out their duties during the year, often under extremely difficult conditions.

B. D. WHITWORTH

DIRECTOR OF MEDICAL SERVICES.

APPENDIX I.

MEDICAL DEPARTMENT STAFFING (AS AT 31.12.64)

(a) DIVISION I AND II.	Name	Station
Director of Medical Services	Dr. B.D. Whitworth	Mbabane
Consulting Surgeon (Part-time)	Dr. H.H. Hamlin	
Consulting Ophthalmic Surgeon (Part-time)	Dr. G. Frampton	
Consulting Physician (Part-time)	Dr. E. Dickie	
Medical Officers of Health	Dr. R.D. Gauldie	Manzini
	Dr. H.C. Armstrong	Mbabane
Medical Officers	Dr. J.F. Alexander	Mbabane
	Dr. F. Friedman	Hlatikulu
	Dr. J.M.L. Klopper	Mbabane
	Dr. S.P.N. Shongwe	Hlatikulu
	Dr. D.W.C. Wagner	PiggsPeak
	Dr. N. Wood	Goedgegun
	Dr. J.L. Stevens	Mbabane
	Dr. J.P. O'Connor	Mbabane
	Dr. Y. Kaplan	Hlatikulu
	Dr. W.J. Downing	Mbabane
Pharmacist/Storekeepers	Mr.J.L. van der Vyver	Hlatikulu
	Mr. G.R. Gibbon	Mbabane
Laboratory Technician	Mrs. M.E. Gibbon	Mbabane
Smear Examiner	Mr. P.M. Matthews	Manzini
Health Inspectors	Mr. D.M. Eckard	Manzini
	Mr. C.D. Nxumalo	Manzini
	Mr. L. Mtetwa	Mbabane
	Mr. L.N. Mbabama	Goedgegun
Matrons	Miss D.E. Burns	Hlatikulu
	Mrs. J. Spencer (Act)	Mbabane
Nursing Sisters	Mrs. A.C.T. Mabuza	Mankaiana
	Mrs. P.T. Mdiniso	Mbabane
	Mrs. S.B. Dowling	Goedgegun
	Mrs. A.L. Ogden	Mahamba
	Mrs. V.W.S. Mabuza	Hlatikulu
	Mrs. N.N.Dludlu	Mbabane
	Mrs. M.T.Z. Masipa	Mbabane
	Mrs. D.M. Bhengu	Mbabane
	Mrs. G.T. Abrahams	Hlatikulu
	Mrs. E. Mtetwa	Hlatikulu
	Mrs. M.W.C.Armstrong	Mbabane
	Mrs. E. Mpungose	Mbabane
	Mrs. A. Dlamini	Mbabane
Radiographer	Miss R.J. O'Shea	Mbabane
Medical Assistant	Mr. A.F.K. Phiri	Hlatikulu
Field Officer (Health Education)	Mr. E.N. Dludlu	Mbabane
Higher Executive Officer	Mr. R.F. Phillips	Mbabane
Accountant	Mr. G.Russell-Smith	Mbabane
Accounts Assistant	Mr. J.C. Mapumulo	Mbabane
Personal Assistant	Miss B. Irvine	Mbabane
Clerk	Mrs. J.M. Lewis	Mbabane
Housekeeper	Mrs. M. McCall	Mbabane
Handyman	Mr. W.Q. Mordaunt	Hlatikulu

/(b) DIVISION III.

(b) DIVISION III.

4	Dispensers
1	Pupil Dispenser
4	Laboratory Assistants
2	X-Ray Assistants
11	Clerks
102	Nurses
1	Nurse/Radiographer
4	Out-patient Attendants
14	Ambulance and Truck Drivers
1	Senior Malaria Assistant
8	Malaria Assistants
2	Bilharzia Field Assistants
1	Vaccinator
4	Dispensary Orderlies
3	Senior Orderlies
34	Orderlies
20	Nurse Aides
3	Wardmaids
14	Laundresses
2	Seamstresses
3	Office Messengers
3	Night Watchmen
5	Groundsmen
6	Cooks
3	Assistant Cooks
6	Housemaids
14	Health Visitors
4	Mental Patient Attendants

APPOINTMENTS, PROMOTIONS, RESIGNATIONS, RETIREMENTS, IN DIVISION I AND II DURING 1964.

APPOINTMENTS

Mr. L.N. Mbabama	Health Inspector	1.2.64
Mrs. M.W.C. Armstrong	Nursing Sister	9.4.64
Dr. J.L. Stevens	Medical Officer	29.10.64

PROMOTIONS

Miss D.E. Burns	Matron	26.8.64
Mrs. E. Mtetwa	Nursing Sister	1.4.64
Mrs. E. Mpungose	Nursing Sister	26.8.64
Mrs. A. Dlamini	Nursing Sister	1.9.64

RETIREMENTS

Mr. J.H. Thomas	Higher Executive Officer	6.9.64
Miss E.M. Bailey	Matron	17.12.64
Miss J.A. Wilson	Matron	26.8.64

COMPLETION OF CONTRACT

Dr. I.G. Tait	Medical Officer	26.11.64
Miss J. Renzema	Nursing Sister	28.2.64

RESIGNATION

Dr. S. Riba	Medical Officer	30.9.64

/APPENDIX II.

APPENDIX II.

RETURN OF CASES TREATED : GOVERNMENT AND MISSION HOSPITALS, 1964.

Detailed List No.	Group Causes	Total Cases	Out-patients	In-patients	Deaths
001-008	Tuberculosis, Respiratory System	994	301	693	95
010	Tuberculosis of Meninges or C.N.S.	7		7	3
011	Tuberculosis of Intestines and Peritoneum	17	4	13	1
012-013	Tuberculosis of Bones and Joints	33	5	28	2
014-019	Tuberculosis - All other forms	128	72	56	
020	Congenital Syphilis	28	25	3	1
021	Early Syphilis	576	552	24	
024	Tabes Dorsalis	4	4		
022-023) 026-029)	All other Syphilis	282	261	21	
030-035	Gonococcal Infection	1732	1702	30	
036-039	Other Venereal Diseases	83	83		
040-041	Enteric Fever	179	10	169	13
044	Brucellosis	1	1		
045	Bacillary Dysentery	368	257	111	5
046	Amoebiasis	227	21	206	15
052	Erysipelas	10	10		
055	Diphtheria	20		20	5
056	Whooping Cough	781	719	62	1
057	Meningococcal Infections	3		3	1
060	Leprosy	5	4	1	
061	Tetanus	19	3	16	8
080-083	Late Effects of Poliomyelitis	5	4	1	
084	Smallpox (Variola Minor)	476	244	232	
085	Measles	714	578	136	4
092	Infectious Hepatitis	80	37	43	3
104	Tick-bite Fever	35	28	7	
116	Malaria	4	2	2	
123-1	Bilharzia (Vesical)	610	529	81	
123-0	Bilharzia (Intestinal)	7	2	5	
126	Tape Worm	505	481	24	
130-0	Ascariasis	643	619	24	
124,128) 130-1)	Other Helminthic Diseases	85	78	7	
049	Poisoning - Food	19		19	
087	Chicken pox	284	264	20	
131	Dermatophytosis	492	491	1	
135	Scabies	152	151	1	
137,138	Other Infective and Parasitic Diseases	258	203	55	
140-150	Malignant Neoplasms of (a) Mouth, Pharynx & Oesophagus	16	2	14	5
151-154	(b) Stomach, Intestine Rectum	13		13	4
161-163	(c) Larynx, Trachea, Lung	9		9	3
170	(d) Breast	2		2	
171	(e) Cervix Uteri	46	12	34	6
172	(f) Body of Uterus	6		6	
177	(g) Prostate	5	1	4	
191-9	(h) Skin	8	5	3	
196-7	(i) Bone & Connective Tissue	9	3	6	
199	(j) All Other Sites	80	2	78	20

Detailed List No.	Group Causes	Total Cases	Out-patients	In-patients	Deaths
204	Leukaemia	3	3		
210-239	Benign Neoplasms	314	266	48	
250-251	Non-Toxic Goitre	80	76	4	
252	Thyrotoxicosis	18	13	5	1
260	Diabetes Mellitus	45	22	23	4
281	Pellagra	602	557	45	3
282	Scurvy	28	27	1	
286-6	Kwashiorkor	657	324	333	51
286-5	Malnutrition- unqualified	823	631	192	25
290	Hyperchromic Anaemias	2	1	1	
291	Hypochromic Anaemias	25	23	2	
292,293	Anaemia, unspecified	313	290	23	
241	Asthma	483	401	82	2
240,242 245	Other Allergic Disorders	353	330	23	
300-309	Psychoses	9	2	7	
310,324 326	Psychoneuroses and Hysteria	484	333	51	
325	Mental Deficiency	48	38	10	
330-334	Vascular Lesions of C.N.S.	6	3	3	3
340	Meningitis (Non-Meningococcal)	42	6	36	6
353	Epilepsy	139	91	48	4
370-379	Inflamatory Diseases of Eye	1097	1049	48	1
385	Cataract	69	43	26	
387	Glaucoma	11	8	3	
390	Otitis Externa	277	264	13	
391-393	Otitis Media & Mastoiditis	1225	1176	49	2
380-384	All Other Diseases of Eye	468	412	56	1
341-344	All Other Diseases of C.N.S. & Sense Organs	374	301	73	5
400-402	Rheumatic Fever	63	35	28	
410-416	Chronic Rheumatic Heart Disease	97	74	23	2
420-422	Arterio-Sclerotic & Degenerative Heart Disease	97	41	56	21
430-434	Other Diseases of Heart	439	293	146	21
440-443	Hypertension & Heart Disease	32	16	16	2
444-447	Hypertension	320	250	70	1
450-456	Diseases of Arteries	13	6	7	
460-468	Other Diseases of Circulatory System	521	360	161	13
470-475	Acute Upper Respiratory Tract Infections including Acute Tonsillitis	4568	4195	373	7
480-483	Influenza	1090	971	119	1
490	Lobar Pneumonia	355	158	197	16
491	Broncho-Pneumonia	932	598	334	36
492,493	Atypical Pneumonia	74	25	49	7
500	Acute Bronchitis	3084	2835	249	3
501,502	Bronchitis, Chronic & Unspecified	1004	931	73	2
512	Chronic Pharyngitis & Chronic Tonsillitis	347	312	35	
518,521	Empyema & Lung Abscess	13	3	10	2
519	Pleurisy	193	138	55	2
523	Pneumoconiosis	19	12	7	
520-522	Other Respiratory Diseases	310	288	22	2
530	Dental Caries	3734	3694	40	
531-535	All Other Diseases of Teeth & Gums	545	523	22	
540	Gastric Ulcer	78	63	15	
541	Duodenal Ulcer	36	20	16	

Detailed List No.	Group Causes	Total Cases	Out-patients	In-patients	Deaths
543	Gastritis & Duodenitis	914	757	157	3
550-553	Appenticitis	181	76	105	
570	Intestinal Obstruction	17		17	8
560	Hernia	83	43	40	2
570-0	Gastro-enteritis (4 weeks to 2 years)	3945	3303	642	94
571-1	Gastro-enteritis (over 2 years)	2759	2322	437	24
572	Chronic Enteritis and Colitis	307	275	32	1
581	Cirrhosis of Liver	102	59	43	3
584,585	Cholecystitis	167	134	33	1
536-539) 544,573) 580,582) 583,586) 587)	Other Diseases of Digestive System	2489	2216	273	19
590	Acute Nephritis	28	15	13	3
591-594	Chronic Nephritis	30	15	15	
600	Infections of Kidney	314	247	67	1
602,604	Calculi of Urinary System	8	5	3	
610	Hyperplasia of Prostate	23	18	5	
620,621	Diseases of Breast	102	87	15	
613	Hydrocele	80	44	36	
634	Disorders of Menstruation	1226	1128	98	
601,603) 605-609) 611,612) 614-617) 622-633) 635-637)	All other Diseases of Genito-Urinary System	4726	3956	770	1
660	Normal Deliveries	2298		2298	
671,) 673-678)	Deliveries with Complications	447		447	15
640,641) 681,682) 684)	Sepsis of Pregnancy Childbirth & Puerperium	44	27	17	
642	Toxaemia of Pregnancy	29	4	25	
643,644) 670,672)	Haemorrhage of Pregnancy and Childbirth	25	7	18	2
650	Abortion	385	50	335	1
651	Abortion with Sepsis	73	7	66	1
690-698	Infections of Skin and Subcutaneous Tissues	2287	1927	360	
720-725	Arthritis and Spondylitis	419	358	61	
726,727	Muscular Rheumatism & Rheumatism Unqualified	1436	1332	104	
730	Osteomyelitis & Peri-Ostitis	123	65	58	
737,745) 749)	Ankylosis & Acquired Musculo-Skeletal Deformity	52	29	23	
700-714	All Other Diseases of Skin	1401	1293	108	
731-736	All other Diseases of Musculo-Skeletal System	965	765	200	10
750-759	Congenital Malformations	62	33	29	3
760-762	Birth Injuries	2	1	1	1
765	Ophthalmia Neomatorum	16	16		
770	Haemolytic Disease (Neo-Natal)	7	1	6	5
773-776	Other Diseases Early Infancy	567	121	446	28
791	Senility	40	29	11	1
788-9	P.U.O.	336	278	58	1

Detailed List No.	Group Causes	Total Cases	Out-patients	In-patients	Deaths
788-1- 788-7 788-9 789-792 795	All other Ill-defined Causes of Morbidity	1496	481	1015	
793	Observation without need for further care	11		11	

"E" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS AND VIOLENCE (EXTERNAL CAUSE)

E810-E835	Motor Vehicle Accidents	706	404	302	19
E800-E802	Other Transport Accidents	239	161	78	2
E870-E895	Accidental Poisoning	120	41	79	4
E900-E904	Accidental Falls	1264	943	321	3
E612	Accidents caused by Machinery	213	139	74	
E916	Accidents caused by Fire	318	184	134	12
E917,E918	Accidents caused by Hot substances and corrosives	332	256	76	1
E919	Accidents caused by Firearms	14	9	5	
E910-E913 E915,E920 E928,E930 E965	All other accidental causes	3456	2508	948	8
E970-E979	Suicide & Self-Inflicted Injury	3		3	
E980-E985	Assault, Homicide	1282	638	644	11

"N" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS AND VIOLENCE (NATURE OF INJURY)

N800-N804	Fracture of Skull	177	22	155	15
N805-N809	Fracture of Spine & Trunk	85	45	40	1
N810-N829	Fracture of Limbs	1185	569	616	6
N830-N839	Dislocation	65	45	20	
N840-N848	Sprains and Strains	911	814	97	
N850-N856	Head Injury (Excluding Fracture)	286	171	115	3
N860-N869	Internal Injury, chest abdomen and pelvis	67	10	57	5
N870-N908	Laceration & Open Wounds	2938	1962	976	10
N910-N929	Superficial Injury - contusion	1172	964	208	1
N930-N936	Foreign Body entering through Orifice	276	218	58	1
N940-N949	Burns	564	354	210	15
N960-N979	Effects of Poison	115	47	68	3
N950-N959 N980-N999	All other effects of External Causes	106	57	49	

Detailed List No.	Group Causes	Total Cases	Out-patient	In-patient	Deaths
Y00	Medical Examinations, Boards and Tax Exemption Examinations	3807	3807		
Y02	Prophylactic Injections				
	(a) Smallpox Vaccination	1549	1549		
	(b) T.A.B.	15	15		
	(c) Diphtheria	166	166		
	(d) Diphtheria, Whooping Cough	4	4		
	(e) Diphtheria, Whooping Cough and Tetanus	169	169		
	(f) Tetanus	10	10		
	(g) Poliomyelitis	45	45		
	(h) Yellow Fever	372	372		
Y06	Ante-Natal Examinations	5435	5435		
Y08	Attendants admitted as In-Patients with sick children	2145	2145		

TOTAL "NEW" PATIENTS 87,657

SUBSEQUENT ATTENDANCES.

Subsequent Ante-Natal Attendances	1,596
Subsequent Prophylactic Injections	3,646
All Other Subsequent Attendances	34,398
Grand Total Subsequent Attendances	39,640

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE
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